BULLETIN

OF

THE LYING-IN HOSPITAL

OF THE

CITY OF NEW YORK.

PUBLISHED UNDER THE SUPERVISION OF THE MEDICAL BOARD.

EDITED BY GEO. W. KOSMAK, M. D.

Volume III.

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CONTENTS.

A REPORT OF FORTY-ONE CASES OF CÆSAREAN SECTION,

WITH CERTAIN MODIFICATIONS OF THE TECHNIQUE OF THE OPERATION.*

By J. W. Markoe, M. D., and Asa B. Davis, M. D., Attending Surgeons.

History.

Cæsarean section is one of the oldest obstetrical operations recorded in history, having been performed not only by civilized people, but by savage tribes in Africa and among the Indians of America. The results of these operations are of necessity veiled in doubt, but it is evident, from the literature upon the subject, that, as a rule, they were bad and for the most part performed in the interest of the child. Later, in the Catholic countries, the operation was brought into prominence by the clergy through their efforts against the too common practice of abortion, and Cæsarean section was advocated by them in the hope of counteracting this practice.

About the year 1600, anatomical research began and thereafter obstetric operations, such as the Cæsarean operations, were performed more often by surgeons than by midwives and priests. No authentic accounts of the technique of these early operations are recorded, and it is doubtful whether many of the patients survived.

From this time on to the introduction of antiseptics the mortality from this operation remained very great, in consequence of which it fell into disrepute and craniotomy and symphyseotomy were strongly advocated by those who believed that the life of the mother was more important to save than that of the unborn child. It was not until the period of antisepsis that Harris, of Philadelphia, and Sanger, of Leipsic, revived the operation, and since that time it has steadily gained in favor. The mortality in the hands of such competent men as these was reduced to a comparatively low point, but taking all the cases recorded from all sources at that period, it still remained high, until about the year 1880, when, in Germany, Runge first urged the doing away with antiseptics in obstetric cases and advocated asepsis in its place.

The Indications for the Operation.

In ancient times, when all surgical procedures were crude and without a proper understanding of the anatomy of the human body, this operation must have been always undertaken as a last resort, or, as is well known to have been the case, not performed until immediately after the death of the mother, with the one hope of saving the life of the child. Upon the introduction of antiseptics, operations involving the peritoneal cavity became more frequent, but the harmful effect of antiseptics upon the peritoneum was slow to be recognized, and the mortality did not improve until true asepsis was adopted, then the technique improved so that at the present time almost anything may be done in the operative line. The peritoneum is invaded with impunity, provided the asepsis is without fault and the operator thoroughly understand the field in which he is working.

Under these circumstances the operation of Cæsarean section no longer holds the terror that it formerly did, and the trained operator undertakes it with as little concern as the general surgeon would an interval operation for appendicitis.

The operation in itself is a simple one and calls for no unusual skill to perform it. We, therefore, feel that in advocating the removal of the child through the abdominal wall in suitable cases the lives and future health of mother and child will be better safeguarded than by any other obstetrical procedure.

It is impossible to lay down hard and fast rules as to what cases shall be considered suitable for Cæsarean operation. Each case must be judged upon its own merits; for example: We do not believe that all cases of placenta previa should be delivered by the Cæsarean method, as we know that many such cases can be more safely conducted by other means; but, on the other hand, we do most strongly believe that there is an ever growing field for its performance—

*This paper was presented at the recent International Medical Congress held in Lisbon during April. Dr. Davis' cases from I to XIX inclusive, have already been published in a previous number, but for the sake of completeness it was thought advisable to repeat them here. Editor.

in certain cases of placenta previa; in eclampsias, where rapid delivery often means the saving of the life of the child; in primiparae, in whom on account of advanced age, or from other causes the birth canal is undilatable, or where it is impossible to deliver the child without deep lacerations and destructions of tissue, even though such cases have normal pelves and moderate-sized children. We are positive that the results would have been better in many cases if the high forceps, symphyseotomy, hebotomy and similar operations had not been persisted in and Cæsarean section, as performed by the authors, had been done instead.

The Operation.

Before anæsthetics were in general use, it was the natural endeavor of the surgeon to perform all operations as rapidly as possible in order that the suffering might be minimized; but, with the introduction of anæsthetics and trained anæsthetists such haste became unwarranted. It is probable that this applies more strongly to Cæsarean section than to all other abdominal operations, for, as a rule, the patient is in normal condition and not wasted by disease, and is thus better able to withstand the shock of operation.

Even in the case of those women who are suffering from the effects of acute hemorrhage, as in placenta previa, or concealed hemorrhage, it is far safer to carry out the technique of the operation with deliberation and at a rate of speed which would be naturally adopted for the execution of any other ordinary abdominal operation; for loops of intestine are in danger of being cut through, and wounds have even been inflicted upon the child when the more rapid method of cutting directly through the abdominal wall into the uterine cavity has been adopted. The results sought for in this operation should be: for the mother, emptying the uterus with the least possible interference and mutilation and with the greatest regard for the safe closure of the abdominal and uterine wounds by primary union; progressive involution and normal replacement of the uterus with unrestricted mobility. For the child: prompt delivery without injury.

The guiding principles in this operation differ in no way from those which control the operations of the general surgeon. Experience leads to the belief that the best results are to be obtained by the following procedure. If the patient is under observation and not an emergency case, she is allowed to go into labor, thus giving probable assurance that the child is full term. A vaginal douche of normal salt solution, or in the case of suspected vaginal infection, corrosive sublimate solution is given. Anæsthesia with chloroform or ether is carried to the surgical degree. With the patient in the dorsal position, the abdomen is scrubbed with green soap and water and washed with a solution of corrosive sublimate, then with ether or alcohol, and lastly with sterile water. Dry sterile protecting drapings are applied. The abdomen is opened by a median incision wholly above the umbilicus and long enough to permit the easy delivery of the child; usually 10 to 12 cm. is found to be sufficient. Bleeding points in the abdominal wall should be controlled. The uterine fundus is found directly under this wound. If the uterus is twisted upon its long axis it should be manually readjusted so that its anterior wall faces directly forward. The abdominal cavity is walled off with three or four gauze pads wet in salt solution, leaving a small portion of the fundus of the uterus the only viscus exposed to view. A competent assistant makes continuous pressure through the abdominal walls with his hands, so regulating this pressure that the uterus during the process of being emptied and closed is held tightly against the abdominal opening.

The uterus is opened by median incision on its anterior surface, carried well up to the top of the fundus and a little longer than the abdominal opening. If the placenta is located under this wound it is better to cut or tear directly through it and deliver the child rapidly. Where possible, the membranes should be kept intact and the hand swept quickly between them and the uterine wall, so that later, when the uterus has contracted, there need not be dangerous delay in removing adherent membranes.

The hemorrhage sometimes comes from large sinuses in the uterine wall, and in such cases the application of a few clamps will control it, and they should be used before proceeding further. In other cases the hemorrhage is diffuse and it is a waste of valuable time to attempt to check it. We believe that the administration of ergot before the operation, as suggested by Olshausen, is a very good plan. The operator should proceed to deliver the child quickly

but deliberately by breech extraction, grasping the foot which presents first, or, in the case of breech presentation, doing a version and then following step by step, as in breech extraction, from below.

The cord is clamped in two places and cut, and an assistant takes the child from the room and attends to the establishing of respiration, the operator giving undivided attention to the mother. The uterus is quickly emptied of placenta and membranes and interrupted, deep sutures of chromic catgut down to the mucosa are placed two centimeters apart in the uterine wound, each suture being tied as soon as laid, thereby checking the hemorrhage.

The assistant may now relax abdominal pressure and the closure of the uterine wound is completed by a continuous suture of catgut, drawing the peritoneum over and burying the deep sutures. The peritoneum closes rapidly, leaving no raw surfaces where adhesions may form and acting as an added safeguard, if by chance any of the deep sutures should give way. The anterior surface of the uterus is cleansed with gauze pads moistened in normal salt solution. The abdominal pads are removed and the completion of the operation is the same as in any abdominal section, and according to the method adopted by the individual operator. As soon as the patient has fairly recovered from the anæsthetic the head of the bed should be raised enough to give it a decided incline, thus favoring uterine drainage and the sinking down of the uterus toward the pelvis and away from the abdominal wound. The distinguishing merits of this procedure are: That the long abdominal wound is done away with. The uterus is not delivered from the abdomen and intra-abdominal manipulation and exposure are minimized, and the shock which is synchronous with the delivery of the uterus is avoided.

The short median incision, wholly above the umbilicus, does much less injury to the abdominal wall and subsequent ventral hernia is less likely to occur, because the wound is short, away from the more dependent part of the abdomen of a parous woman, subjected to less pressure, and is better supported by the recti muscles as they approach their upper attachments. When the operation is finished the uterine wound and the abdominal wound are not in contact, for the emptied uterus takes a position below the umbilicus, and if the peritoneum is closed over the uterine wound there are no raw surfaces to come in contact; adhesions do not take place; involution goes on almost as rapidly as in the case of normal delivery and, eventually, the uterus assumes the position of anteversion in the pelvis, without adhesions and in no way restricted as to its normal mobility. Where primary union takes place in the abdominal wound the cicatrix shrinks to one of about six to eight centimeters in length.

Mortality.

In a properly equipped hospital, with modern aseptic methods, the Cæsarean operation has a very low mortality when performed upon women who are not already infected and in whom no serious complications exist. In the forty-one Cæsarean operations herein reported, six of the mothers failed to survive. Four of the forty-one were performed in ordinary tenement houses, where the surroundings were of the most squalid character. Of the six fatal cases three were septic before operation was begun. One died from acute exacerbation during labor of a chronic parenchymatous nephritis; one from the shock of hysterectomy added to Cæsarean section, and one from peritonitis, the infection in this case having found entrance through the opening in the uterine wound (the peritoneum not having been brought over the deep sutures) by the pulling out of one of the uterine sutures which had been accidentally caught in the uterine gauze packing.

Cases Reported by J. W. Markoe, M.D.

Case I.

M. B. Colored. Married; age, 39; para XI. February 8, 1898.

Family History—Mother delicate; father well; otherwise negative.

Personal History—Was born in Bermuda; began to menstruate at 13 years; always regular; all labors have been easy; has seven children living; cause of death of others unknown; never had an abortion.

Pregnancy—Complains of having been very weak during present pregnancy. Some oozing of blood from the cervix, which is evidently the seat of carcinoma, making delivery through the infiltrated soft parts a dangerous procedure. As she was in labor on admission to the hospital, it was decided to perform Cæsarean section.

Measurements—Normal.

Operation—Chloroform to surgical degree, then ether throughout the operation. Abdomen prepared with green soap and bichloride solution at time of operation. Incision in median line from just above symphysis for 18 cm. Uterus delivered through abdominal wound. Incision longitudinally in anterior uterine wall in middle zone 13 cm. in length. Child extracted by feet without difficulty. Placenta and membranes then delivered manually and uterine cavity wiped out with iodoform gauze, then with hot normal salt solution. Strip of iodoform gauze left in cervix.

Uterine wound closed with 12 no. 12 twisted silk sutures. Abdominal wound closed with fine catgut in peritoneum and 12 silk-worm gut sutures through skin and fascia.

Patient's highest temperature was 101 degrees on the morning after the operation, and remained below that until her discharge on the 20th day after labor. Child was still-born and macerated, and weighed 3,550 grams. C. N. 885.

Case II.

A. P. Married; age, 25; para I. December 28, 1898.

Family History—Unknown; both parents dead.

Personal History—Was born in Russia; began to menstruate at 18 years; always regular; denies ever having been ill.

Pregnancy—Nothing abnormal noted; admitted to hospital on day of operation, in labor.

Measurements—Patient's height, 135 cm.; ant. spines, 23 cm.; crests, 26 cm.; external conjugate, 19 cm.; diagonal conjugate, 10 cm.; true conjugate, 8.50 cm.; exterior oblique, R. 21 cm.; L. 21 cm. Justo minor flattened pelvis.

Operation—Chloroform to surgical degree, then ether throughout the operation. Abdomen prepared with green soap and bichloride solution at time of operation. Incision in median line with umbilicus at center, 18 cm. in length.

Uterus delivered through abdominal wound. Longitudinal incision in anterior uterine wall 11.50 cm. long. Placenta on anterior wall and incision carried through it and child extracted by feet. Placenta and membranes extracted manually.

Uterine wound closed with ten black silk sutures, a strip of iodoform gauze being left in cervix.

Abdominal wound closed with 13 silkworm sutures.

On morning after operation temperature was 102 deg.; pulse, 100; resp., 24. A double lobar pneumonia developed, and despite all treatment the patient died on the 8th day after the operation.

No autopsy was allowed, but the abdominal wound which was entirely healed was broken open after death and a moderate amount of peritonitis discovered. The child was discharged well on the 14th day. C. N. 1161.

Case III.

T. P. Married; age, 24; para II. November 6, 1902.

Family History—Negative.

Personal History—Born in Austria; first menstruated at 14 years; not known to have had diseases of childhood.

Pregnancy—Has been well except for moderate headaches.

Measurements—Patient's height, 147 cm.; ant. spines, 19 cm.; crests, 24 cm.; external conjugate, 19 cm.; diagonal conjugate, 9.5 cm.; true conjugate, 8 cm.; external oblique, R. 21 cm., L. 20 cm.

Operation—Chloroform to surgical degree throughout the operation. Abdomen prepared with green soap and solution of bichloride. Incision in the median line 13 cm. in length, 1-3 above and 2-3 below the umbilicus. Uterus not delivered through abdominal wound, but held by assistant with hand on both sides of abdominal wall. Longitudinal incision in anterior uterine wall 9 cm. in length. Edge of placenta at wound. Child extracted by feet. Placenta and membranes manually removed. Uterine hemorrhage quite sharp, but easily controlled. Uterine wound closed with 9 chromic catgut sutures and peritoneum closed over these with continuous fine chromic catgut sutures. Abdominal wound closed in layers. Skin with fine interrupted black silk.

On morning after operation temperature reached

101.2 deg.; pulse, 100; and again on the fifth day, when the first dressing was done, it reached 101.2 deg.; pulse, 90; and she was discharged well on the 29th day after the operation. The child was a boy weighing 3,208 grams, and is still living. C. N. 2092.

Case IV.

A. B. Married; age, 30; para III. December 6, 1902.

Family History—Negative.

Personal History—Was born in Germany, and gives no history of diseases of childhood or adult life. Has one living child, born prematurely. The second child was born dead, having been delivered with instruments.

Measurements—Patient's height, 145 cm.; ant. spines, 23 cm.; crests, 25 cm.; external conjugate, 18 cm.; diagonal conjugate, 10.4 cm.; true conjugate, 8½ cm.; external oblique, R. 21 cm.; L. 21 cm.

Operation—Chloroform to surgical degree. Abdomen prepared with green soap and bichloride solution. Abdominal incision 11.5 cm. to the left of the umbilicus and half above and half below it. This incision was enlarged with scissors. Uterus not delivered through abdominal wound, but held by an assistant. Uterine incision 9 cm. in length in anterior abdominal wall and longitudinally. Upper border of placenta was under incision. Child was extracted by feet. Placenta and membranes extracted manually. Uterine wound closed with 12 chromic catgut sutures. Abdominal wound closed in layers, skin with black silk.

The operation was performed in the early morning, and on the night of that day the temperature was 104.4 degrees; pulse, 100. She continued to have high temperature until the ninth day, when it became normal. On the eleventh day a culture was taken from the vagina, and showed a growth of staphylococcus pyogenes aureus and bacillus coli communis. The abdominal wound healed primarily, and the treatment was intra-uterine douches of sterile water.

The child, a female, weighed 2,600 grams, and was discharged with the mother on the 27th day, both being in good condition. C. N. 2183.

Case V.

L. V. Married; age, 43; para IX. November 14, 1903.

Family History—No history of carcinoma received. Father still living.

Personal History—Was born in New York of Italian parents. States that she had whooping cough, otherwise perfectly well until present pregnancy. All her labors were easy.

Pregnancy—About one month before operation she had severe hemorrhage from the cervix, two days after which she applied to this hospital for treatment, and was cared for in her own home. Examination showed a poorly conditioned woman, with a tumor on right side of cervix the size of a lemon. The body is hard, but the vaginal surface friable and bleeds easily. Tumor extends into cervix. Before the day of operation she had three moderate hemorrhages that were easily controlled by packing.

On admission to the hospital she was in labor, and Cæsarean section was decided upon.

Measurements—Normal.

Operation—Ether to surgical degree. Abdomen prepared with green soap and bichloride solution. Incision 10 cm. below and 3 cm. above and to the left of umbilicus. Median incision in uterus and child extracted in membranes and immediately given to assistant. No attempt to suture the uterine wound was made, as a hysterectomy was decided upon. This was rapidly performed, but proved too much for the already exhausted woman, and she died without regaining consciousness. The child, a male, was premature, and weighed 1,075 grams, was never vigorous, and died of marasmus two months and four days after its birth. C. N. 3267.

Case VI.

B. G. Married; age, 23; para I. January 18, 1904.

Family History—Negative.

Personal History—No disease of childhood that she could remember. Menstruated first at the age of 14.

Pregnancy—Perfectly well during the entire time.

Measurements—Patient's height, 149 cm.; ant. spines, 22½ cm.; crests, 24 cm.; ext. conjugate, 17 cm.; ext. oblique, R. 19 cm.; L. 20.5 cm.; diagonal conjugate, 11.5 cm.; true conjugate, 9.5 cm. The pelvis was a true nagelie pelvis.

Operation—Patient was allowed to remain in labor for twenty hours in the hope that the head would engage. As this did not occur she was immediately prepared for operation. Chloroform and then ether, given to the surgical degree. Abdomen prepared with green soap and solution of bichloride. Abdominal incision 8 cm. to left and partly below umbilicus. Uterine incision longitudinally 6 cm. in length, placenta on posterior wall of uterus. Child extracted by feet; placenta and membranes manually. Uterine wound closed with 8 No. 3 chromic catgut sutures and continuous plain catgut sutures in uterine perito-

neum, closing in entirely the deep suture. Abdominal wound closed in layers.

Patient's temperature reached 100.2 on the third day, and was normal all the rest of the time. The child, a female, weighed 3,075 grams, and both mother and child were discharged well on the 26th day after operation. C. N. 3431.

CASE VII.

L. B. Married; age, 17; para I. February 21, 1904.

Family History—Negative.

Personal History—Was born in New York City. Began to menstruate at 11 years; always regular; no history of diseases in childhood.

Pregnancy—Well throughout except for constipation.

Measurements—Patient's height, 160 cm.; ant. spines, 20.5 cm.; crests, 24 cm.; ext. conjugate, 20 cm; diagonal conjugate, not reached; true conjugate, not estimated; ext. oblique, R., 20.5 cm.; L., 20 cm.

The pelvis was of the male type, but flattened on the sides, increasing the anterior posterior diameters. Labor was induced by the introduction of a bougie into the uterus.

Operation—Chloroform followed by ether to surgical degree. Abdomen prepared with green soap and solution of bichloride. Abdomen opened by incision at umbilicus and to the left 10.50 cm. Peritoneum walled off with sterile pads before opening the uterus. Uterine incision 10.50 cm., longitudinally. Child extracted by feet. Placenta and membranes manually. Considerable hemorrhage from placental site, but easily controlled. Uterine wound closed with 5 plain no. 4 catgut sutures; uterine peritoneum then brought together over these deep sutures entirely closing them in. Abdominal wound closed in layers.

On the fifth day after operation there was evidence of suppuration in the abdominal wound, as the temperature rose to 104 degrees. The sutures were removed, and the wound healed by granulation. There was some foul lochia, and the uterine cavity was irrigated. Both mother and child were discharged well 35 days after the operation. The child, a male, weighed 4,000 grams at the time of birth. C. N. 3663.

CASE VIII.

T. P. Married; age, 24; para III. March 8, 1904.

Family History—Negative.

Personal History—Born in Austria. First menstruated at 14 years. Not known to have had diseases of childhood.

Pregnancy—Patient has never menstruated since the last child was born by Cæsarean section 16 months ago. The size of the uterus being that of a full-term pregnancy, it was decided to not wait for labor to commence before operating.

Measurements—Patient's height, 147 cm.; ant. spines, 19 cm.; crests, 24 cm.; ext. conjugate, 19 cm.; diagonal conjugate, 9.5 cm.; true conjugate, 8 cm.; ext. oblique, R. 21 cm., L. 20 cm.

Operation—From date of quickening and size of uterus it was decided that she was at full term; this proved not to be the case when a 7½ mos. fœtus was delivered with marked hydramnios. Upper end of old incision excised for 8 cm. Peritoneum then walled off with pads and incision made in uterus 8 cm. No sign of old wound in uterus could be discovered. Child extracted by feet; placenta and membranes manually. Uterine cavity washed out with hot normal saline solution, and wound closed with 6 No. 4 catgut sutures, with a continuous in peritoneum, completely burying these. Abdominal wound closed in layers.

The child, a female, weighed 1,900 grams; lived two days, and died of atelectasis. The mother was discharged on the 19th day entirely well, no rise in temperature having occurred. C. N. 3730.

CASE IX.

E. P. Colored; age, 30; para I. March 8, 1904.

Family History—Negative.

Personal—No history of severe illness; first menstruated at the age of 14; always regular.

Pregnancy—No complications.

Measurements—Patient's height, 154 cm.; ant. spines, 21 cm.; crests, 23 cm.; ext. conjugate, 18 cm.; diagonal conjugate, not reached; true conjugate, not reached; ext. oblique, R. 21 cm., L. 20.05 cm.

Pelvis contracted at outlet and in transverse diameter.

Operation—Chloroform followed by ether to surgical degree. Abdominal incision to left of umbilicus 9 cm. in length. Peritoneum then walled off with sterile pads. Uterus strongly rotated to right side, so that left broad ligament was directly under abdominal wound, so that uterus had to be straightened before incision, which was longitudinal, and about 9 cm. in length. Child delivered by feet; placenta and membranes manually. There was an excess of liquor amnii. Uterine wound closed with 8 catgut sutures; uterine peritoneum then brought together, burying these deep sutures. The patient had one rise of temperature to 100 degrees on the second day;

wound healed by primary union. The child, a male, weighed 3,100 grams, and both mother and child were discharged well on the 21st day after the operation. C. N. 3731.

CASE X.

M. C. Married; age, 42; para XI. June 21, 1904.

Family History—Nothing abnormal. Father died at 77 years of age; cause unknown. Mother and two brothers living and well; no history of any chronic disease in the family.

Personal History—Born in Italy 42 years ago; married for 22 years; came to this country six years later. Ten years ago, owing to an injury to her husband, she was obliged to work very hard in squalid surroundings, at times without food and proper clothing. Hitherto she had always been perfectly well, but after about three years of hard work and poor nutrition, during which time she had become practically destitute, she noticed that she was growing weaker and rapidly losing flesh; following this her spine became crooked, so that she bent forward in walking. Later she developed severe pains in her back and thorax, groins and legs, soon becoming unable to walk without assistance.

Pregnancy—Nothing abnormal, except continued weakness and inability to walk, with constant pain.

Diagnosis—Osteomalacia.

Measurements—Patient's height, 134.50 cm.; ant. spines, 24.5 cm.; crests, 27.5 cm.; ext. conjugate, 19.5 cm.; diagonal conjugate, 10 cm.; true conjugate, 8 cm.; ext. oblique, R. 21.5 cm., L. 22 cm.

During her 22 years of married life she has had seven normal labors, two premature labors, one miscarriage. Of the normal labors the first three children resulting died; the first one when a week old, the second one when a week, the third one three months old. No cause for death is given for any one of these. The fourth child lived to be four years old, and then died; the fifth, sixth and seventh, aged 15, 11 and 6 years, respectively, are living, and have always been well. It is three years since her last child was born, and in this time she has been growing much worse, shorter in stature and more deformed.

Operation—As the patient was in active labor and on account of contracted inlet and outlet, she could not be delivered of a living child by the usual methods, it was decided to perform Cæsarean section. Abdomen was opened by an incision 11 cm. in length to the left of the umbilicus, one-half above and one-half below. Peritoneal cavity was then walled off with gauze pads; uterine incision in the median line going through the centre of the placenta. Child extraced by feet; placenta and membranes manually. Interior of uterine cavity was wiped out with iodoform gauze. No. 3 chromic gut was used to close uterine incision, after which uterine peritoneum was quilted over these, entirely burying the deep sutures. Abdominal wound closed in layers, but, owing to the poor quality of gut used in sutures of abdominal wound, this broke down within 24 hours and had to be resutured. Patient had some fever lasting two days, but she was discharged on the 35th day with the wound entirely healed and in good condition. The child, which was somewhat premature, died of atelectasis two days after delivery. C. N. 4141.

CASE XI.

M. S. Married; age, 38; para V. June 25, 1904.

Family History—Negative.

Personal History—First menstruated at 17 years. No history of serious illness. First child was born dead in a hospital in Russia, instruments having been used. The next year she was delivered by private physician, instruments again being used; child now 13 years old, is an idiot and deformed. Three years later another child was delivered with instruments; now 10 years old and normal, except for dent in left frontal bone. Four years later fourth child was delivered with instruments, dead.

Pregnancy—Negative.

Measurements—Patient's height, 162 cm.; ant. spines, 22 cm.; crests, 29 cm.; ext. conjugate, 20.50 cm.; diagonal conjugate, 10.5 cm.; true conjugate, 9 cm.; ext. oblique, R. 21.50 cm., L. 21.50 cm.

Operation—Four days before operation cervix was packed to induce labor, which, together with manual dilatation of the cervix, brought on strong pains, but head would not engage. As abdomen had already been prepared, it was opened by an incision to left of umbilicus 5 cm. above and 5 cm. below it. Peritoneal cavity then walled off with pads and uterus opened by longitudinal incision 10 cm. in length. Hemorrhage from uterine wall severe, but easily controlled. Child extracted by feet; placenta and membranes manually. Uterine wound closed with 6 catgut sutures no. 3, then uterine peritoneum quilted over this, entirely burying deep sutures. Abdominal wound closed in layers.

Although this patient was discharged on the 29th day after the operation, with wound healed and in fair condition, she had many serious complications. The abdominal wound became infected, and was healed by granulation; also, almost from the beginning, the lochia was foul and the temperature high.

Both these conditions gradually subsided. The child, a female, weighed 2,550 grams, and was discharged with the mother well. C. N. 4163.

CASE XII.

M. S. Married; age, 28; para II. March 15, 1905.

Family History—Negative.

Personal History—Born in Russia; otherwise negative; no history of insanity.

Pregnancy—Remained perfectly well during entire period.

Measurements—True conjugate, 8 cm.; other measurements not obtained.

Operation—Chloroform followed by ether to surgical degree. Abdomen cleansed in usual manner. Abdominal incision to the left of umbilicus and from umbilicus upward for 10 cm. Peritoneal cavity then walled off with sterile pads. Uterine incision 10 cm. longitudinal direction. Membranes were separated from uterine wall before being ruptured. Child removed by feet. Uterine wound closed with 6 chromic catgut sutures. Uterine peritoneum closed over these deep sutures with continuous catgut. Abdomen closed in layers.

Evidences of retained lochia were present a few days after operation, and by means of a recurrent catheter a considerable amount of fluid was evacuated. There was probably a purulent focus present in the uterine wound which remained localized and did not invade the peritoneum, for the patient at no time developed any signs of peritonitis. This process gradually subsided, and the patient was allowed up. On the 15th day she developed signs of insanity, which increased to such an extent that it was necessary to transfer her to the City Hospital. The child, a male, weighed 3,150 grams, was perfectly healthy, and was discharged with the mother. C. N. 5356.

CASE XIII.

E. R. Married; age, 25; para I. March 17, 1906.

Family History—Negative.

Personal History—Born in Russia. First menstruated at 14 years; regular.

Measurements—Patient's height, 135 cm.; ant. spines, 21 cm.; crests, 23.5 cm.; ext. conjugate, 17 cm.; diagonal conjugate, 9 cm.; true conjugate, 7.5 cm.; ext. oblique, R. 19 cm., L. 17.5 cm.

Operation—Vertex presentation. Ether and chloroform to surgical degree. Abdominal incision, 10 cm. from umbilicus upward. Peritoneum walled off with sterile pads. Uterine wound closed with 6 chromic catgut sutures and buried with the uterine peritoneum by a continuous catgut suture. Abdomen closed in layers.

The child, a female, weighed 3,350 grams. Severe bronchitis developed with fever on the third day, but both child and mother were discharged well on the 21st day. C. N. 5362.

CASE XIV.

L. A. 34 years of age; para I. December 24, 1894.

Family History—Reveals the fact that both her mother and father died of phthisis.

Personal History—Born in Poland. Some time before she was two years old she was badly burned on left arm by scalding tea, and to this she attributes her crooked back. Gives no history of other illness.

Measurements—Patient's height, 128 cm.; external conjugate, 15 cm.; ant. spines, 24 cm.; crests, 25.5 cm.; external oblique, R. 20.5 cm.; L. 20.5 cm.; diagonal conjugate, 10.25 cm.

On account of the spinal deformity and the straight sacrum, the true conjugate is truly 7 cm.

This case was operated upon in the tenement where she lived, and was the first Cæsarean section done in the service of the hospital.

Operation—Labor having begun and the cervix dilated 2 cm. the patient was given ether to the surgical degree. Abdomen scrubbed with green soap. The abdomen was opened by an incision, starting a little above the symphysis and extending upward for 23 cm. Uterus then brought out of the wound and surrounded with large elastic band, to be used in case of hemorrhage. An incision, 15.5 cm., was then made longitudinally in the anterior wall of the uterus, cutting into the lower portion of placenta. Child extracted by right arm, then head, placenta and membranes manually extracted and uterine cavity wiped out. Ten deep silk sutures were placed in uterine wound and 11 silk superficial. Wound closed by continuous fine silk sutures.

Patient developed bronchitis with temperature 102 in the evening of the third day, but this gradually subsided, and both mother and child were discharged well on the 30th day. C. N. 5506.

CASE XV.

S. C. Married; age, 24; para I. April 19, 1905.

Family History—Negative.

Personal History—Born in Russia. First menstruated at 16 years; regular. No history of diseases of childhood.

Pregnancy—Perfectly well until taken in convulsions, when she was immediately brought to the hospital in the ambulance. Vertex presentation.

Measurements—Patient's height, 159 cm.; ant. spines, 24 cm.; crests, 27.5 cm.; ext. conjugate, 19 cm.; diagonal conjugate, 10.5 cm.; true conjugate, 9 cm.; ext. oblique, R. 21.5 cm., L. 21.5 cm.

Operation—The certainty of a living child, together with the hopeless condition of the mother, caused the selection of Cæsarean section, as it insured a living child, and could in no way detract from the chances of the mother. Chloroform was given to surgical degree. Abdominal incision 12 cm. long to left of umbilicus, 2 cm. below and 10 cm. above. Peritoneum walled off with sterile pads. Child extracted by feet, and, in extracting the after-coming head, the lower angle of uterine wound was torn 2 cm. Placenta and membranes manually extracted. Uterine wound closed with 10 chromic catgut no. 3 sutures, and the uterine peritoneum by a continuous catgut suture, burying the deep sutures. Abdomen closed in layers.

The child, a female, weighed 3,250 grams and was perfectly healthy, being discharged from the hospital well on the 10th day. The mother's urine (what could be procured of it) boiled solid, and was loaded with casts. The treatment was large rectal irrigations, saline infusion to replace the blood lost at the time of operation, which was moderate in amount, nitroglycerine and chloroform to control convulsions, which, notwithstanding all treatment, continued until death took place, nine hours after her admission, her temperature having risen to 105 degrees.

The autopsy showed multiple sub-capsular hemorrhages. The diagnosis from complete autopsy was puerpeal eclampsia; general parenchymatous degeneration from acute toxæmia. C. N. 5515.

Case XVI.

A. B. Married; age, 35; para VI. December 13, 1905.

Family History—Negative.

Personal History—First menstruated at the age of 13; always regular; had smallpox as a child; all previous deliveries were instrumental, and all the children still-born.

Pregnancy—Had vomited frequently and had not felt well.

Measurements—Patient's height, 151 cm.; ant. spines, 24 cm.; crests, 30 cm.; ext. conjugate, 21.50 cm.; diagonal conjugate, 10.50 cm.; true conjugate, 8.75 cm.; ext. oblique, R. 21.50 cm., L. 22 cm.

Pelvis is of the male type.

Operation—Abdominal incision 11 cm. to left and entirely above umbilicus. Abdominal wall very fat, necessitating a longer incision. Peritoneum walled off with sterile pads. Uterine incision longitudinal, 11 cm. long. Placenta directly under wound; hand passed over edge and child extracted by feet. Placenta and membranes manually extracted. Nine deep sutures in uterine wall; uterine peritoneum then sutured over these, burying them. Abdomen closed in layers.

Patient developed a severe bronchitis and vomited almost continuously. This was controlled by rectal feeding and lavage, but the stomach was and still is enormously dilated. Several abscesses developed in different parts of her body, which were opened and healed slowly by granulation, and she was discharged on the 46th day with wounds almost healed. One month later she reported at the hospital in splendid health and all wounds healed. The baby, a female, weighed 3,300 grams, and was discharged with the mother in good health. C. N. 6710.

Case XVII.

M. H. Married; age, 28; para III. May 15, 1905.

Family History—Mother died in childbirth.

Personal History—Born in England; had scarlet fever and diphtheria as a child; first menstruated at the age of 12 years. Previous pregnancies were one abortion and one induction of labor, seven months child only living three hours.

Pregnancy—No complications.

Measurements—Patient's height, 143 cm.; ant. spines, 21 cm.; ext. conjugate, 17.5 cm.; diagonal conjugate, 10 cm.; true conjugate, 8.5 cm.; ext. oblique, R. 21.5 cm., L. 21 cm.

Operation—Abdominal incision to left of umbilicus and above it 10 cm. in length. Peritoneum walled off with sterile pads. Uterine incision 10 cm. into placenta, which was situated anteriorly. Child extracted by the feet. Placenta and membranes manually extracted. Uterine cavity wiped out with iodoform gauze. Uterine wound closed with 8 chromic catgut sutures, and uterine peritoneum brought over these, burying them.

Child, a male, weighed 3,650 grams. Four hours after the operation the mother's temperature went to 101.2 degrees, then remained normal until her discharge on the 19th day. Child was discharged with mother in normal condition. C. N. 6106.

CASE XVIII.

K. S. Married; age, 24; para I. November 27, 1905.

Family History—Parents dead; cause unknown.

Personal History—First menstruated at 17 years; always regular.

Pregnancy—Has had considerable headache and constipation.

Measurements—Patient's height, 155 cm.; ant. spines, 23 cm.; crests, 29 cm.; ext. conjugate, 18 cm.; diagonal conjugate, 10.5 cm.; true conjugate, 8.5 cm.; ext. oblique, R. 22.5 cm., L. 22.5 cm.

Patient had been in labor 24 hours and had had high forceps attempted.

Operation—Chloroform to surgical degree, then ether. Abdominal incision 8 cm. long to left of umbilicus, 2 cm. below and 6 cm. above. Peritoneum walled off with sterile pads. Uterine incision 8 cm. Membranes separated by the hand before ruptured. Child extracted by feet. Placenta and membranes manually. Uterine incision closed with 8 chromic catgut sutures, then buried by peritoneum. Hemorrhage from sinuses sharp but easily controlled. Abdomen closed in layers. Patient twice had a temperature of 101 degrees, but made an uneventful recovery.

Child, a male, weighed 2,100 grams, was born with heart beating, but all efforts to establish respiration failed. Mother was discharged well on the 23d day.

Autopsy on child showed atelectasis. C. N. 6222.

CASE XIX.

S. S. Married; age, 22; para III. December 22, 1905.

Family History—Negative.

Personal History—First menstruated at 13 years; always regular.

Pregnancy—Has no complications.

Measurements—Patient's height, 151 cm.; ant. spines, 21 cm.; crests, 24.5 cm.; ext. conjugate, 18 cm.; diagonal conjugate, 10.75 cm.; true conjugate, 8.75 cm.; ext. oblique, R. 24.5 cm., L. 23 cm.

Pelvis was generally contracted, and the presentation was a head and both feet, with partial placenta previa. Breech extraction or the use of forceps was decided too dangerous.

Operation—Chloroform and ether to surgical degree. Abdominal incision 12 cm. in length to the left of umbilicus and 2 cm. below and 10 above it. Peritoneum walled off with sterile pads; uterus opened in median line 10 cm.; membranes separated from uterus wall before rupturing. An attempt to deliver child by feet was found to be impossible, and so the breech was extracted; in so doing the lower angle of the wound was torn for a distance of 3 cm., but this was easily closed with sutures, 10 chromic catgut in all being used. The peritoneum was quilted over these deep sutures, burying them.

The child was a male, weighing 2,900 grams. Their convalescence was uninterrupted, and both mother and child were discharged well on the 23d day. C. N. 6758.

CASE XX.

S. K. Married; age, 29; para II. December 29, 1905.

Family History—Negative.

Personal History—First menstruation at 18 years; always regular; first child was born dead after instrumental delivery in which her vagina and perineum were terribly torn.

Pregnancy—Nothing abnormal.

Measurements—Patient's height, very short; ant. spines, 21.5 cm.; crests, 28 cm.; ext. conjugate, 20 cm.; diagonal conjugate and true conjugate could not be made out on account of atresia of vagina; ext. oblique, R. 21 cm., L. 22 cm.

The patient evidently has a justo minor flat pelvis, with an almost complete atresia of the vagina 4 cm. from the vulva.

Patient was placed under an anæsthetic and the vault of the vagina split enough to admit the finger; this was then enlarged until the cervix could be easily felt. The wound was then packed with iodoform gauze, and three hours later Cæsarean section was performed.

Operation—Ether to surgical degree. Abdominal incision to left of umbilicus 2 cm. below and 8 cm. above. Peritoneum then walled off with pads. Longitudinal incision in uterus 10 cm. Child extracted by feet; membranes and placenta were adherent and were manually removed. Uterine wound closed with 8 chromic catgut sutures. Uterine peritoneum was brought over deep sutures, burying them. Abdomen closed in layers. After the operation the iodoform gauze was removed from the vagina.

Child, a female, weighed 3,100 grams. The mother's temperature never went above 99 degrees. Both mother and child were discharged well on the 25th day. The vagina had again contracted down, but there remained a canal which would admit the index finger. C. N. 6795.

Cases Reported by Asa B. Davis, M.D.

Case I.

C. F., age 22, Austrian, para I, a rachitic dwarf with irregularly contracted pelvis. Applied for attendance during confinement on November 29, 1900, and was apparently early in the ninth month of her pregnancy. The patient measured 127 cm. in height, and her right leg was found to be somewhat shorter than her left. The pelvic measurements were as follows: Between spines, 21 cm.; crests, 24 cm.; external diagonal conjugate, 14.5 cm.; internal, 9 cm.; true, 7.5 cm. The right side of the pelvis was flattened, and the sacrum presented a marked anterior angular curvature. The fœtus presented by the vertex, which was still above the brim, the fœtal heart was to the right and below, 144, of good force and volume. The family and patient's history were without note. The labor pains began on January 21, 1901, about 2 a. m., but did not become forcible until the next afternoon. The cervix was soft and admitted one finger, membrane intact. The head was above the brim and movable. A Cæsarean section was done that same evening at her home in an ordinary tenement, with no particular attention given to the preparation of the room. Under ether anæsthesia a median abdominal incision was made, extending from a point about 8 cm. above to another about 12 cm. below the umbilicus. The uterus was delivered through this incision and opened in the middle line to the extent of about 20 cm., the intestines being held back by a packing of hot, wet towels. The child and placenta were readily extracted, and the hemorrhage, which was very slight, was easily controlled by an assistant grasping both broad ligaments. The uterus was closed by six heavy silk sutures passed down to the endometrium and an additional series of six superficial catgut sutures. The organ was then replaced and the abdominal wound closed with through and through silkworm gut sutures. Respiration was readily established in the child, a vigorous, well-developed male, weighing 3,360 grams. On the fifth day of the puerperium the mother's temperature rose to 101.2 degrees F., which was ascribed to imperfect uterine drainage and the caked condition of the breasts. It soon subsided and thereafter remained practically normal. The abdominal sutures were removed on the eighth day and the wound found healed by primary union. The patient was able to be up and about on the twenty-second day. The child was normal, nursed well and gained weight steadily. On March 1, 1901, the woman was seen and examined and found to be in good condition. The uterus was fixed to the anterior wall, and a dragging pain in the region of the cicatrix was complained of. The child was normal and had gained about 900 grams. C. N. O. 21,259.

Case II.

Mrs. A. R., para I, age 22, Russian. Was seen in consultation after having been treated by two private physicians and a midwife, on August 18, 1901. The patient was at term and said to have been in labor for the past forty-eight hours, but making no further progress. Examination disclosed a flattened pelvis, with the following measurements: Distance between spines, 19.5 cm.; between crests, 27 cm.; external obliques, 21 cm.; external conjugate, 17 cm.; internal diagonal, 10 cm., and true conjugate, 8 cm. The fœtus was made out to be a L. O. P.; the heart sounds were not audible, although declared to have been so shortly before. The uterus was in a state of tonic contraction, the membranes ruptured and the cervix dilated to four fingers. Cæsarean section was decided upon, and performed at the woman's home in a tenement. A mild chloroform anæsthesia was induced while preparations were going on, in order to check the uterine contractions, and then carried out to the surgical degree for the operation itself, which lasted from 7.23 to 8.12 p. m. The uterus was delivered through a long median abdominal incision, and found to be of the bicornuate variety.

When opened by a longitudinal incision the buttocks of the fœtus were seen to be in the left cornu, the feet in the right, the dorsum to the left, and the vertex crowded down and moulded into the left side of the pelvis. The infant's head was moderately hydrocephalic, with large fontanelles and sutures wide open, and considerable force was needed to extract the head from its impacted position. The heart of the fœtus continued to beat for twenty minutes, but, with the exception of a few gasps, no efforts at respiration were made. Its estimated weight was about 3,600 grams. After being quickly emptied of placenta and clots, the uterus was closed with six heavy silk sutures, deeply placed, and eight finer ones of silk more superficially introduced. The patient's condition being poor, the abdomen was quickly closed with through and through sutures of silkworm gut and superficial ones of catgut. The puerperium was marked by a moderate degree of sepsis, the highest temperature being 103 degrees, F., on the third day. With the exception of a small amount of suppuration at the lower angle, the wound healed by primary union. The woman was discharged on the

forty-third day, post partum. The uterus was at the umbilicus and adherent. Subsequently the patient developed a menorrhagia, the menstrual flow was coming on every three weeks and lasting ten days. In the Summer of 1903 a small abscess appeared in the abdominal cicatrix, from which a silk suture was removed by operation in another hospital. After healing had taken place there were no further menorrhagic symptoms, and the periods came on regularly every four weeks and lasted four days. The patient had gained weight, and is in good general health. Has not been pregnant since the Cæsarean was done. C. N. O. 22,752.

CASE III.

Mrs. A. E., age 21, Roumanian, para I, applied at the hospital August 10, 1901. The patient measured 140 cm. in height, and the pelvis was of the justo-minor variety, the true conjugate being 9 cm. On November 4 she began to have labor pains, and sent to the hospital for a doctor. The staff man detailed on the case found the cervix three fingers dilated, the membranes intact, and as the uterine contractions were neither frequent nor forcible, the case was "false-called." Soon after a midwife was called in by the family, who took charge of the case and made a number of vaginal examinations. A second call was not sent to the hospital until about thirty hours later. When visited again by a member of the staff the patient was found in a very poor general condition, the uterus in a state of tonic contraction, the membranes ruptured, and a thick grumous fluid was draining away from the vagina. The fœtal head was above the brim and would not engage. The fœtal heart was audible. Preparations were hastily made in the tenement where she lived for a Cæsarean section. The abdomen was opened in the median line by a long incision, and the uterus delivered. The rubber tourniquet was omitted and the uterus incised in the middle line. The child an placenta were readily extracted and no unusual amount of blood was lost, although the uterus did not contract quickly. A strip of iodoform gauze was inserted, and the wound closed with seven sutures of heavy-twisted silk passed down to the endometrium, and nine finer silk sutures placed superficially. The abdomen was closed with ten silkworm gut sutures through all the layers and a few superficial ones of catgut. The patient's condition, after operation, was very poor; pulse, 140, small and irregular. She did not rally from the shock, grew very delirious and could be kept in bed only with difficulty. Death came on twenty-two hours after delivery, with an almost total suppression of urine during the interval. The child, which was in fair condition after operation, unfortunately lived only two days and died from inanition. C. N. O. 22,752.

CASE IV.

P. G., negress, U. S., age 27, para I, applied for treatment June 27, 1903. The patient measured 142 cm. in height, and presented the typical appearance of advanced rachitis. She was 7½ months pregnant, fœtal head above the brim and position. L. O. A. The important pelvic measurements were as follows: External conjugate, 18 cm.; internal, 10 cm.; true, estimated at 8 cm.; a generally contracted rachitic pelvis into the cavity of which it was impossible to force the vertex. There was present a profuse purulent vaginal discharge, and numerous condylomata were scattered over the vulvæ and the vagina. The secretion was found to be full of gonococci. On July 20 she was admitted to the hospital and given vaginal bichloride douches. Labor began on August 12 at noon, but by evening no advance of the head could be detected. The operation of Cæsarean section was decided on; begun at 9.13 p. m. and completed at 10.10 p. m., the child being delivered at 9.20. Chloroform followed by ether was employed as an anæsthetic, and the abdominal incision was carried from a point 4 cm. above to another 6 cm. below the umbilicus and slightly to the left. The uterus was incised in the median line at the fundus, and the child extracted by the right thigh. After clearing out the cavity of the uterus, strips of iodoform gauze were introduced and passed half way into the vagina. The uterus was closed by five deep chromic gut and nine superficial catgut sutures. The abdominal wound was closed in three layers with catgut and silk. The patient made a good recovery, the highest temperature being 100 degrees on the second day. On the sixth day the wound was dressed, and at a point about 2 cm. above the umbilicus a separation occurred from which a drachm and a half of bloody sero-sanguineous fluid was discharged. The cavity healed up, and when all the stitches were removed, three days later, only three small sections of the skin had failed to unite. These also closed, and on the 22d day the patient was allowed to sit up. On the 38th day the fundus was 11 cm. above the symphysis and apparently slightly adherent to the abdominal wall. The discharges from the cervix and vagina continued to show gonococci. The child, weight 3,900 grams, was in good health and was discharged with its mother on the 38th day. C. N. I. 2973.

CASE V.

M. A., age 35, Russian, para III. Her first child was still-born; attended by midwife. The second lived one week; delivered at this hospital; weight, 3,100 grams; died of atelectasis. The labor was uneventful. Patient again applied for admission on July 27, 1903; she presented a pendulous abdomen with uterus tipped forward and the fundus at the umbilicus when standing. Pregnancy was at 7½ months. The pelvic measurements were as follows: Between spines, 25 cm.; crests, 26.5 cm.; obliques, 24 and 25 cm.; external conjugate, 22 cm.; internal conjugate not reached and true conjugate not estimated. The pelvis was funnel-shaped, quite roomy above, but with a very narrow outlet below, and it was concluded that a living child could not be born without serious injury. She was extremely anxious for a child, however, and on September 15th was admitted to the hospital. Labor began on the 22d, and operation was undertaken that same evening under ether anæsthesia, lasting from 9.43 to 11.35 p. m. An incision, 16 cm. long, was made slightly to the left of the median line. The abdominal wall was very thin, and uterus and intestine were kept out of the wound with difficulty. An opening was made in the upper portion of the uterus about 12 cm. long. Profuse hemorrhage from a vessel in the lower angle of the wound could be controlled by digital pressure. The child was extracted by the right thigh, and the uterus rapidly emptied of placenta and clots. Half of a 10 cm. strip of iodoform gauze was passed out through the cervix and six deep chromic gut sutures used to close the opening in the uterus, together with a series of more superficial ones. The abdomen was closed in three layers, but with some difficulty on account of the thin character of the wall and the forcible respiratory movements made by the patient. The child was a female, robust and weighed 4,100 grams. The recovery was uninterrupted and the wound was healed by first intention. The patient was out of bed on the twenty-third day and discharged on the thirty-fourth day, when the uterus was found to be still quite high, fairly mobile and not sensitive. C. N. I. 3093.

CASE VI.

M. H., U. S., age 21, para I, admitted September 17, 1903. The patient gave a history of having contracted hip disease after a traumatism when seven years of age. Menstruation has always been painful. The patient at the time of admission was very poorly nourished. The right hip was anchylosed, and the thigh adducted so that the vaginal examination was rendered difficult. The phalanges of the left hand were rudimentary. The pelvis was irregularly contracted, the measurements being as follows: Between spines, 23.5 cm.; crests, 25 cm.; external conjugate, 19 cm.; right oblique, 20 cm.; internal conjugate, 11 cm.; true, 9 cm. The right acetabulum appeared to have been forced into the pelvis and encroached considerably on the cavity. The patient was about eight months pregnant. The fœtus L. O. A., but the head could not be forced into the pelvis. Labor began on the morning of October 13th. The pains were irregular through the day, but toward evening began to be more regular and effective. The cervix was soft, but failed to admit even one finger. The case appeared suitable for Cæsarean section, which was accordingly done the same night. The abdominal incision was carried 7 cm. above and the same distance below the umbilicus, and the opening in the uterus was made about 14 cm. long, beginning just above the bladder. A living child was extracted and then the placenta was found adherent in the right cornu and along the posterior wall, requiring manual removal. The membranes were likewise adherent and had to be pulled off piecemeal. A profuse hemorrhage resulted from these manipulations and the relaxed condition of the uterus, which continued until the deep sutures were in place. A piece of iodoform gauze was packed into the uterus and passed out through the undilated cervix, and six deep and nine superficial sutures of chromic catgut inserted. The abdominal wound was closed in three layers. The patient's condition was very poor after the operation, and she suffered considerably from shock and acute anæmia. Stimulation by rectum (whiskey, 1 oz. to the pint of hot saline) and hypodermically (strychnia, gr., 1-30) met with a prompt response. The wound healed by primary union, and the patient was up and about on the 18th day p. p. The child weighed 3,400 grams at birth, nursed well and gained steadily. On December 10th, the 58th day after delivery, the patient was discharged in good condition; the uterus central, adherent to the abdominal cicatrix, but moderately mobile and only slightly sensitive on manipulation.

This patient was a particularly unfavorable case for operation, yet she made an excellent recovery. On the sixth day post partum, the red cells numbered 34,400,000, and the hemoglobin was 55 per cent. On only two occasions after operation did the temperature rise above 100 degrees F., and then only a fraction of a degree, due to caked breasts and cracked nipples.

On July 30, 1904, the patient was again admitted to the hospital and the right cystic ovary removed

and the adhesions broken up. The woman had previously complained of a great deal of abdominal pain, particularly over the site of the wound. On March 1, 1905, the left ovary, which had become cystic, was likewise removed, and the uterus at this time was found to be small, virginal and well down in the pelvis. C. N. I. 3168.

Case VII.

A. L., age 17, U. S., admitted October 24, 1903, in the sixth month of her pregnancy. During the past two weeks she had a great deal of pain on defecating and urinating, and for the previous two days complained of bearing down pains in the lower part of the abdomen, which were gradually increasing in force and frequency. Examination showed practically normal pelvic measurements. The fundus uteri reached a point of 35 cm. above the symphysis, and above this extended an area of tympanites about 8 cm. wide. The palpation of the fœtus was unsatisfactory, owing to the tense condition of the abdominal walls; the heart was faint, but the movements were vigorous. Vaginal examination showed the cervix to be closed and pushed upward and forward against the base of the bladder. The vagina itself was tender and inflamed, and examination was difficult. In the posterior wall was a large indurated mass, which was determined later on under chloroform anæsthesia to almost entirely fill up the vagina, extending to within 4 cm. of the posterior commissure and about the same distance from the under surface of the pubic arch. It appeared like a tense multilocular cyst filling up the posterior portion of the pelvic cavity and occupying a position astride the rectum like a saddle-bag. The abdomen was greatly distended and the skin glossy, and a very distressing dyspnœa was present. Preparations for operation were made, and the abdomen incised in the median line 7 cm. above and below the umbilicus. As soon as the peritoneal cavity was opened a large quantity of straw-colored fluid issued, estimated to amount to three or four gallons. The uterus was in the median line, and its size corresponded to a 6 or 7 months' pregnancy. A small, round, hard tumor was noted on the anterior surface of the uterus, and a considerable number of similar growths, of varying size, were scattered over the parietal peritoneum, around the base of the bladder, in the pelvis and over the broad ligaments. The parietal peritoneum was thickened, dark and congested, the intestine also congested. The liver was about twice its normal size, the free edge irregularly thick and rounded, and the color a light gray with black streaks running through it. The spleen was also enlarged to double the normal size. After walling off the abdominal cavity with wet gauze pads, the uterus was opened in the median line and the hand swept around the interior in order to free the membranes. The ovum was readily delivered with the placenta intact. The cervical canal, as examined from above, was found to be tightly closed. It was dilated sufficiently with the finger to permit the passage of a strip of iodoform gauze as a drain, and the uterus then closed with seven deep and seven superficial chromic gut sutures. The abdominal wound was closed with difficulty, as it was impossible to readily differentiate the layers. The patient was in poor condition, but responded to stimulation, and later on appeared to be relieved by the operation. Although apparently healing, the abdominal wound was found on the 9th day to be breaking down, and later on a number of nodules appeared in the wound, probably malignant in character. During this time it was difficult to secure thorough evacuations, as the bowel appeared to be obstructed. The patient's general condition and comfort appeared improved, and she was allowed to sit up in a chair for several days before discharge on the 39th day. She died at home on January 19, 1904, from general sarcomatosis, but before that had been in comparative comfort. Examination of the nodules, removed from the uterus at the time of operation, were diagnosed by the pathologist as "small round cell sarcoma." C. N. I. 3228.

Case VIII.

Mrs. R. S., Austrian, age 26, para I, applied for admission November 21, 1903. At this time she was about eight months pregnant, and might be described as a dwarf, being only 128.5 cm. in height. The pelvic measurements were as follows: Between spines, 23 cm.; between crests, 25 cm.; external conjugate, 17 cm.; right oblique, 18 cm.; left, 17 cm.; internal diagonal, 10.5 cm., and true conjugate estimated at 8.5 cm. There was also present a dorsal kyphos and a rotary lateral scoliotic curvature, with a marked compensatory lordosis in the lumbar region. The pelvic outlet was markedly contracted, and the abdomen was pendulous. The fœtal head could not be crowded down into the pelvis. The patient was in poor general condition, but improved under care and proper treatment. At 5 p. m., on December 18th, the first uterine contraction came on, and at 9 p. m. the Cæsarean was begun and completed in the usual manner without any complications. There was a small tumor on the anterior wall of the uterus, which was removed. The wound was dressed on the 6th day

and found healed by primary union. On the 7th day caked breasts and fissured nipples gave rise to some elevation of temperature, which soon subsided. The general condition of the mother and child being very poor, they were kept in the hospital, and at the time of dischagre, on the 52d day, both were improved. The small tumor removed from the uterus was examined and found to be a myoma. C. N. I. 3383.

CASE IX.

Mrs. R. K., Russian, age 28, para I, applied at the hospital January 16, 1904. She presented an irregularly contracted rachitic pelvis, with a true conjugate estimated at 9 cm. She was admitted February 26, in labor. The uterine contractions were forcible, but the fœtal head was large and could not be driven into the pelvis. Under slight chloroform anæsthesia, the cervix was dilated up to four fingers, but no advance was noted. The membranes were still unruptured and protruding. Cæsarean section was decided upon, and the abdomen opened by a median incision 10 cm. long, half being above and half below the umbilicus. There was a well-marked dextrotorsion of the uterus. Some difficulty was experienced in placing one of the abdominal pads, which, accidentally, stripped down the peritoneum over the left broad ligament, leading to a profuse hemorrhage. The uterine incision happened to go into the placenta, and, after enlarging the opening with the index fingers, the child was extracted by the left foot as rapidly as possible, for the bleeding was quite intense. After delivery of placenta and membranes, about 30 cm. of iodoform gauze was passed down through the cervix, a part being left in the uterus. The deep and superficial uterine sutures readily controlled all the bleeding, and after closing the wound in the peritoneum made by the pad, the abdominal wall was closed in tiers. The child was vigorous and the patient made a good recovery, the wound healing by primary union. The gauze was removed from the cervix on the 3d day; it was found to have caused some retention. On the 17th day the patient was allowed to sit up in a chair; the fundus was 6 cm. above the symphysis, the uterus freely movable, not tender and anteverted. The woman was discharged on the 26th day in good condition. C. N. I. 3684.

CASE X.

M. M., negress, 18 years of age, para II, had been delivered of a living child in another hospital by Cæsarean section in 1901, which had since died. She again became pregnant, and was admitted to this hospital on March 18, 1904, in the second stage, being brought here in an ambulance, and having been in labor sixteen hours. The membranes had ruptured spontaneously, and the uterus at this time was in a state of tonic contraction. Examination showed the woman to be apparently at term, and the uterus was adherent to the broad cicatrix from the previous operation, which extended from the umbilicus to the symphysis. The vertex was above the brim, and could not be crowded down into the pelvis. The fœtal heart was slow, weak and could only be heard with difficulty. The woman's pelvis was of the generally contracted, rachitic type, and the true conjugate was estimated at 8.25 cm., but, at the subsequent autopsy, was found to measure only 7.5 cm. The promontory was on a higher plane than the symphysis. The fœtus presented transversely and the right arm was prolapsed. Version was said to have been tried, but was unsuccessful. Within half an hour after admission Cæsarean operation was started. The abdomen was opened by a median incision, 12 cm. long, a little to the left of the median line, and 7 cm. of this length was above the umbilicus. The lower part of the uterus was found to be walled off by dense adhesions. The median incision made in the fundus passed directly through the placenta. The child was extracted by the left leg, and, although the secundines were quickly removed, the hemorrhage was profuse. Some of the membrane was adherent and could be torn away only with difficulty. The uterine contractions were also interfered with by the presence of the adhesions already referred to. The incision was closed with five deep and seven superficial chromic gut sutures, and the abdomen in tiers. The child was vigorous and weighed 3,000 grams. The woman was returned to bed in fair condition considering the severity of the case. She complained of a great deal of abdominal pain, which became very intense and was accompanied by tympanitis. The temperature rose to 101.4 degrees F., and remained there 24 hours, when it gradually declined, reaching 97 degrees on the fourth day post partum, with the pulse at 135. Although a number of attempts were made no satisfactory evacuation of the bowel was obtained. Examination of the abdominal wound on this day disclosed a thin, rusty fluid, with a fetid odor, being discharged from the lower angle of the same. This was increased by pressure and became more purulent. The patient was put under an anæsthetic and the wound opened, but no considerable pocket of pus found, and the cul-de-sac was clean. The abdomen was flushed out with warm normal saline solution and iodoform gauze drains passed in all directions, brought out through the abdominal wound and the

latter partially closed by suture. The woman's condition did not improve, but became progressively worse, and she died the same evening. The autopsy showed evidences of a fibro-purulent peritonitis and a fatty liver. The child lived and weighed 2,950 grams on discharge. C. N. I. 3766.

Case XI.

Mrs. A. D., U. S., age 29, para III. Her first child was born in 1898, weighed 6½ pounds, labor easy. She miscarried in 1900. On January 8, 1904, she applied for admission to the hospital, and on February 1 presented herself with the history of a mild nystagmus. The patient measured 150 cm. in height and presented a flattened rachitic pelvis, with a prominent beak at the symphysis and the coccyx and lower end of the sacrum turned sharply forward. There was also a secondary projection on the sacrum about 5 cm. below the true promontory. The ischial spines were long and the pelvis was very shallow over the left acetabulum. The true conjugate was calculated to be 8 cm. On April 4 she was admitted to the hospital. The urine showed slight albuminuria and a few casts. Labor began on April 11, at 5 a. m., but in the next 16 hours there was no advance. The membranes remained intact and the vertex failed to engage in the pelvis. The fœtal heart sounds were audible. The patient was prepared for Cæsarean section and anæsthetized with chloroform. An incision about 10 cm. long was made to the left of the umbilicus, half above and half below. On entering the abdomen the uterus was found to be twisted around to the right, so that the left broad ligament with the corresponding ovary and tube were directly under the wound. After restoring the uterus, it was opened by a median incision well up toward the fundus and the child extracted by the left foot, a slight delay being caused by the wound being insufficient to allow the delivery of the head. After clearing out the uterus it was packed with iodoform gauze, some of which was passed down through the cervix. The uterine wound was closed with five deep sutures of No. 4 chromic catgut and six superficial ones of No. 2. The abdominal wound was closed in three layers. There was very little hemorrhage, and the patient's condition was as good as after an ordinary labor. The child was a male and weighed 3,025 grams. The mother's wound healed by primary union and the recovery was uneventful. The patient was up on the 16th day, and on the 18th day post partum the fundus was 10 cm. above the symphysis and slightly adherent to the abdominal wall. On the 30th day post partum mother and child were discharged in good condition, the latter weighing 4,025 grams. In November, 1905, the patient was three months pregnant, and, in lifting some heavy furniture, aborted, but incompletely. She was admitted to the hospital and curetted. The uterus was found to be in a normal position, non-adherent and no thickening was apparent in the parametria. The abdominal cicatrix was about 6 cm. in length and hardly visible. C. N. I. 3857.

Case XII.

Mrs. P. G., negress, para II, was delivered by Cæsarean section in this hospital in July, 1903. (C. N. I. 2973; see Case IV in this report.) Becoming pregnant again, she applied for admission a second time, in May, 1904, and was admitted October 19th. Labor began at 12.15 a. m. on November 20th, but by morning the cervix had only become dilated up to one finger. Preparations were made for another Cæsarean, and, in making the abdominal incision, about 8 to 10 cm. of the upper end of the old cicatrix were dissected out. The uterus was found adherent to the abdominal wall, but not directly under the old scar. The previous incision in the uterus could not be detected. The patient took the ether badly, and it was necessary to stop the operation for a time. A median incision was made in the uterus near the fundus about 8 cm. long, which extended directly into the placenta. There was a profuse hemorrhage, and the rent in the placenta was quickly enlarged with the fingers, and the child's foot seized and extracted as soon as possible. After delivery of the fœtus the uterus was emptied and a strip of iodoform gauze passed partially out through the cervix, which was found to be dilated about two fingers. A single deep suture of No. 4 chromic gauze gut introduced at the lower angle of the wound stopped practically all the hemorrhage, and with five more of the same kind the uterus was closed. At this point the woman was in very poor condition, and apparently dying. The abdominal wall was quickly closed in two layers, as the peritoneum and fascia could not be differentiated. A great deal of mucus had been inspired, and the patient developed a broncho-pneumonia. At the end of twenty-four hours her temperature was 104 degrees F., pulse 155, respiration 56. She remained in this state for another day, and then gradually began to improve. The temperature was reduced to normal on the 6th day and remained so, but the respirations continued above twenty-four for six days more. She was discharged on the 26th day in very good condition, with the wound healed. The child had not gained, and was fed on the bottle. The

uterus was adherent to the abdominal wall and 13 cm. above the symphysis. In December, 1905, the patient presented herself for examination. Her child was living and healthy. She herself had developed a ventral hernia to the left and outside of the lower end of the abdominal wound. C. N. I. 4830.

CASE XIII.

Mrs. A. G., Russian, 22 years old, para I, applied for treatment August 29, 1904. She measured 153 cm. in height, and her weight was 52 kilos. The external conjugate was 17 cm.; internal diagonal, 10 cm., and the true conjugate estimated at 8 cm. She came into the hospital on November 29, having been in labor since the previous day. The cervix admitted three fingers, but there was no advance of the fœtal head, and, owing to the small size of the true conjugate, it was deemed best to do a Cæsarean operation. The abdominal wall was opened in the median line by an incision 8 cm. long above the umbilicus and the dextrotorsion of the uterus manually adjusted. The latter was incised at the fundus (8 cm.) and the fœtus extracted by the right foot. After emptying the uterus of placenta and membranes the wound was closed with six deep and twelve superficial chromic gut sutures. The abdomen was sutured in three layers and the patient returned to bed in excellent condition. On the 9th day sutures were removed, and the wound found healed by primary union, the fundus at this date being one finger below the umbilicus. On the 14th day the woman was out of bed, the fundus being 6 cm. above the symphysis. On the 19th day vaginal examination showed the uterus to be freely movable, not sensitive in the axis of the brim, and the fundus 5 cm. above the symphysis. The child presented a marked depression at the time of delivery over the left parietal eminence from pressure against the sacral promontory during the early stages of labor, but this did not apparently affect the infant, which nursed well, and was discharged with its mother in good condition. C. N. I. 4867.

CASE XIV.

Mrs. M. S., age 23, Austrian, para I, was admitted to the hospital on the evening of January 17, 1905, with a history of labor having begun two days previously, and membranes ruptured that morning. Attempts at a high forceps delivery had been made by two outside physicians without success, and from these efforts there had resulted a peritoneal tear of the second degree. Examination of the woman in the hospital showed a narrow, funnel-shaped pelvis, with a true conjugate estimated at 9 cm. Her pulse was 110, the intestines were greatly distended, and the general condition poor. The fœtal head was engaged, and in the cavity of the pelvis, and another attempt at delivery with high forceps was made. No advance was possible, however, and the cervix, which remained more or less contracted around the head, was packed with iodoform gauze, as was the vagina, and the patient prepared for Cæsarean section. The abdomen was opened by a median incision 9 cm. long, entirely above the umbilicus, and the uterus incised at the fundus. The placenta was directly under the latter wound, and had to be torn through, but the hemorrhage was not very profuse. The child and secundines were readily extracted, but, before the uterus could be closed, the patient, who had been taking the anæsthetic very badly, vomited and forced the uterus and intestines out through the abdominal wound. After being replaced the uterus was closed with six deep and seven superficial chromic gut sutures and the abdominal wall in layers. The patient was returned to bed in fairly good condition, and remained so until the following day, when she began to vomit, and complained of general abdominal pain. Some of the distention which came on was relieved by high ox-gall enemas, but catharsis given by mouth was ineffectual. The patient grew progressively worse, and died in the early morning of the third day p. p. The autopsy disclosed a purulent peritonitis and gangrenous endometritis. Cultures, which had been taken from the lower segment of the uterus before operation, showed both staphylo and streptococci, after twenty-two hours' growth. Cultures taken from the veins showed no growth in forty-eight hours. The child weighed 3,200 grams, presented a cephalhematoma over the right parietal region; the face was congested and considerably bruised by the blades of the forceps, and its general condition was very poor. It died fifty-three hours after birth. C. N. I. 5079.

CASE XV.

Mrs. R. B., age 24, Austrian, para I, admitted to the hospital February 2, 1904. She presented a generally contracted pelvis, with a true conjugate estimated at 7.5 cm. Her height was 149 cm. Labor began on February 20, but after 15 hours no progress was apparent, although the uterine contractions were frequent and forcible. Preparations for a Cæsarean were made, and the abdomen opened in the median line by an incision extending from the umbilicus up-

wards for a distance of 9 cm. A 9 cm. long incision was made at the fundus uteri, and the left leg grasped and the child extracted by the Smellie-Veit method. The placenta was removed with the hand, and there was some delay in getting out all the membranes. The uterus was closed with six deep and seven superficial chromic gut sutures. The operation was quickly done, and both mother and child were in good condition. On the third day the fundus was 11 cm. above the symphysis. The wound healed by primary union. The temperature remained below 100 degrees F., until the 9th day, when it began to rise. The abdomen disclosed nothing abnormal, but a slight dullness was noted at the right apex, together with crepitant and sub-crepitant rales and harsh breathing. Three days later the patient also complained of severe abdominal pain and passed several bloody stools with a very foul odor. Rectal examination was negative. The cough was severe, with profuse muco-purulent expectoration, and there was great pain in the chest. The entire right lung seemed to be involved, but the symptoms gradually cleared up, and on March 30 the patient was able to get up. The uterus and adnexa were normal at this time, the uterus being merely a little to the right of the median line. The child did not do well, developed a considerable temperature during the first week, kept on losing weight and finally died on the 25th day. At the autopsy the scalp and left half of the cerebrum were found to be congested, the lungs ditto, and numerous small hemorrhages under the pleura. The heart was acutely dilated. C. N. I. 5249.

Case XVI.

Mrs. R. O., age 26, Austrian, para IV, applied May 12, 1905, when 8½ months pregnant, with a breech presenting. Her previous history was as follows: The first child was delivered by the writer on August 29, 1900, craniotomy being found necessary (C. N. O. 20,137). The second child was delivered by this hospital November 10, 1901 (C. N. O. 23,409), a Cæsarean being done and a living child secured, the uterus being delivered from the abdomen and the transverse fundal incision used to open it.

A child was delivered October 25, 1903, by this hospital, also by Cæsarean, using a long median incision. This child died at twenty-one months of "brain fever" (C. N. O. 3206). The fourth child was born June 7, 1905, and this labor forms the subject of the present history.

The mother was admitted to the hospital on May 27, 1905, and went into labor on June 7th. The contractions were forcible, but the cervix had only dilated up to the two fingers when the patient was prepared for Cæsarean operation. The pelvis was irregularly contracted and flattened with a high sacral promontory. The true conjugate measured 9.5 cm. The abdomen was opened by a median incision above the umbilicus, 10 cm. long. The uterus was found adherent to the anterior abdominal wall by broad areas of loose adhesions about a centimeter long, but no traces of the previous incisions in the uterus could be seen. The fundus was opened by a median incision, 12 cm. long, which was followed by profuse hemorrhage from one of the sinuses. The membranes were ruptured, and, as the breech still presented below, the right foot of the child was grasped and a podalic version done, followed quickly by a breech extraction, according to the method of Smellie-Veit. The secundines were rapidly removed, and the bleeding controlled by packing the cavity of the uterus with sterile towel, which was later replaced by a strip of iodoform gauze passed through the cervix. Seven deep and eight superficial chromic gut sutures were needed to close the wound in the uterus. The woman was put to bed in good condition and made an uninterrupted recovery, the highest temperature and pulse figure being 99.2 degrees F., and 88 respectively. On the 15th day the patient was up and was discharged on the 18th at her own request. The wound healed by primary union. The child was vigorous, weighed 3,500 grams, nursed well. In this instance the operation seemed to have caused the patient less inconvenience than an ordinary delivery. C. N. I. 5747.

Case XVII.

Mrs. G. M., age 41, Italian, para II, previous pregnancy 13 years ago, the child being alive and well. The patient was admitted July 23, 1905, in labor at term. The woman had always been well up to the time of her present pregnancy, but during the previous April she had noticed slight vaginal bleeding after coitus, which continued from this time on. About the middle of June a persistent sero-sanguineous discharge with a foul odor appeared. Examination at the time of admission showed a normally placed fœtus and a true conjugate of 10 cm. The cervix was less than three fingers dilated, and the membranes intact. Its anterior lip was taken up by a cauliflower growth, which seemed to extend into the left broad ligament, but its upper limits could not be determined. In the anterior vaginal wall was another mass to the left of the urethra, about 6 by 3 cm. The inguinal glands were slightly enlarged and hard. There were several other nodes in the vagina

on the left side. Sixteen hours had elapsed during which the pains were fairly strong, the cervix was four fingers dilated, membranes unruptured, vertex low in the pelvis. The uninvolved tissues seemed to have dilated to the maximum extent, but the remainder showed no tendency whatever to dilate. Under the circumstances it was thought best to deliver the child by the abdominal route, and after preparations were completed, an abdominal incision 10 cm. long was carried from the umbilicus upwards. The opening in the uterus was made at the fundus, the membranes were freed with the hand and ruptured. The child was readily extracted by the Smellie-Veit method. After removing the secundines the uterine wound was closed with four deep and twelve superficial chromic gut sutures. The uterine wall gave evidences of having undergone changes, probably malignant in character, the tissues being of a pearly white texture, and so brittle as to scarcely permit the tying of the sutures. There was comparatively little blood lost, however, during the operation, and the patient was put to bed in good condition. The child did not thrive until after it was put on the bottle; it weighed 2,900 grams on the 29th day. The mother made a good recovery, and was also allowed to go on the latter day, the wound having healed by primary union. According to the pathologist's report the specimen taken from the cervix showed the growth to be an epithelial carcinoma. At the time of the patient's discharge the uterus was not sensitive, well retracted, but only slightly mobile, its movements being restricted by the presence of the malignant growth. C. N. I. 5880.

Case XVIII.

S. L., Russian, age 20, para I, applied for admission July 8, 1905. The woman was a dwarf, 141 cm. in height, with a flattened pelvis, having a sharp projecting promontory and a contracted inlet, and a true conjugate of 8.25 cm. Labor began on September 11th, at 2 a. m., and in three hours she was fully dilated, but the head became only slightly engaged. As there seemed to be no prospect of delivery after a labor of ten hours, Cæsarean section was decided upon. A median incision was carried for a distance of 12 cm. from the umbilicus upwards, and the uterus incised well up towards the fundus, during which act there was considerable hemorrhage from some of the uterine sinuses. The membranes were ruptured after being freed by the hand, and the child delivered by a breech extraction after the method of Smellie-Veit. After removal of placenta and membranes the uterus was closed with six chromic gut sutures (No. 3), deeply placed, and another series of more superficial ones. There had been considerable hemorrhage throughout the operation, but the uterus contracted well, although some oozing continued to take place from the vagina even after the patient was returned to bed. The child was vigorous, well formed, and weighed 3,200 grams. On the 12th day the fundus was midway between symphysis and umbilicus, and the wound was healed by primary union, and measured 7 cm. in length. The mother and child were discharged in good condition on the 29th day. The uterus was free and the fundus not adherent. C. N. I. 6260.

Case XIX.

Mrs. N. G., U. S., age 21, para II, had been delivered by Cæsarean section in this hospital June 21, 1904 (C. N. I. 4146). Her baby was living and healthy. She presented a generally contracted pelvis, with a true conjugate of 8.5 cm., and a high sacral promontory. The patient was again admitted to the hospital in a pregnant condition on September 28, 1905, and went into labor on October 18th. The membranes had ruptured and the head could not be forced into the pelvis. As high forceps had been attempted the last time without success, it was thought best to do a Cæsarean at once. The abdominal cavity was opened by a median incision 12 cm. long, from the umbilicus upwards. No trace of the former wound in the uterus could be found, and only a few weak adhesions were present between the anterior surface and the abdominal wall. The uterus was opened by a median incision 14 cm. long, well up towards the fundus, then the child was seized by the left leg and readily extracted. After removing the secundines there was a profuse flow of blood from the uterus, which seemed in an atonic condition. A towel was packed into the cavity, but without much success in checking the flow. The upper angle was held with a double tenaculum, and eight deep chromic gut sutures were inserted as rapidly as possible and immediately tied, but the uterus failed to contract. The pulse became weak and there was considerable shock. After the superficial sutures were inserted and the uterus pushed down into the pelvis the bleeding ceased. The abdomen was closed in three layers. The child weighed 2,675 grams, was well developed, but at least fifteen minutes were required to establish respiration. The patient made a fairly good recovery from the effects of the operation, and was out of bed in a chair on the 12th day, the wound having healed by primary union. The woman and her baby

were discharged on the 18th day in excellent condition. C. N. I. 6449.

CASE XX.

Mrs. A. D., Austrian, age 22, para I, applied for treatment in her home December 2, 1905. She measured 145 cm. in height, and her pelvic measurements were as follows: between spines, 25 cm.; between crests, 30 cm.; external conjugate, 19.5 cm.; external obliques, 23 cm.; internal diagonal conjugate, 10 cm.; estimated true conjugate, 8 cm. The pelvis was of the rachitic flattened type, with figure of eight shaped inlet, the pubic rami nearly horizontal and on a much lower plane than the promontory of the sacrum. She was visited February 5, 1906, found to be having only very infrequent pains; cervix thick; one finger dilated,—"false-called."

In the early morning of March 11, 1906, she was found to be in beginning labor. By 11 p. m. of same date dilatation had reached to four fingers; membranes were bulging; vigorous uterine contractions had been going on for hours, every five minutes. There was no attempt at engagement of the vertex at 1 a. m., March 12, 1906, nor could the head be crowded into the pelvis. The fœtal heart was 130. Cæsarean section was decided upon. The abdomen was cleansed and protected, and opened by median incision 10 cm. long, wholly above the umbilicus. The uterus was twisted over to the right, so that the left appendages came into view. It was lifted back with the hand and gauze pads, wet in salt solution, closed off the abdomen. No viscus save the uterus and a small portion of omentum was seen throughout the operation. The uterus was opened by median high incision. It bled profusely. The child was extracted by the right leg. Placenta and membranes were quickly removed, and the uterus closed by seven deep interrupted sutures of chromic gut, and the peritoneum was drawn together, burying these sutures by a continuous catgut suture. The abdomen was closed in three layers. There was only moderate hemorrhage except when the uterus was first opened. The wound healed by primary union. The first dressing was made on the 8th day, when the silk sutures were removed. The patient suffered only moderate discomfort for the first 48 hours, and the temperature went to 101.8 once on the second day. After that it was normal. She was allowed to sit in a reclining chair the 10th day, when the fundus uteri was 11 cm. above the symphysis. After that she was allowed to walk about the ward. On the 14th day post partum the uterus was centrally located, fully movable and not tender. Fundus 6.5 cm. above symphysis.

The child was a male, weighing 3,200 grams. It was partly nursed and partly bottle-fed. It had lost weight, but had reached its birth weight on the 14th day. Abdominal cicatrix, 7.5 cm. Mother and child discharged well on the 16th day. C. N. I. 7194.

CASE XXI.

M. H., age 22, Polish, para I. Widow; husband died of tuberculosis six months ago; mother died of tuberculosis; no evidence of tuberculosis in patient. Applied at the hospital February 16, 1906, for care in her home during her approaching confinement. Measurements: Height, 157 cm.; spines, 23.5 cm.; crests, 28 cm.; external conjugate, 20.5 cm.; external obliques, 22 cm.; internal diagonal conjugate, 12 cm.; estimated true conjugate, 10 cm.

First call sent to hospital about 10 p. m., March 26th. As near as could be learned patient had been in labor thirty hours without attention. Examination showed forcible uterine contractions every five minutes. Cervix three fingers dilated; membranes intact and bulging; face presenting right mento posterior; fœtal heart 140, left and below. Maternal heart, 100.

March 27, 1906, 3 a. m. Cervix fully dilated, chloroform anæsthesia; unsuccessful attempt to flex head. Membranes ruptured spontaneously; tonic uterine contraction appeared with well-marked contraction ring; high forceps could not be applied, and it was not deemed safe, on account of thinned lower segment, to persist in attempts at cephalic version. Patient transferred in ambulance to the hospital. Maternal heart about 100; uterus contracted tightly about child; contraction ring visible; fœtal heart 108-115 full, with sharp, accented sound. Face through cervix in mid-pelvis, occiput far up to left, chin, pointing to right acetabulum. Cæsarean section seemed to offer quickest and safest mode of delivery for mother and child. Chloroform was changed to full ether narcosis. Abdomen prepared and protected in the usual way, and opened by median incision wholly above the umbilicus about 12 cm. long. Uterus surrounded with gauze pads, wet in normal salt sol., walling off abdominal cavity. Longitudinal incision opened uterus. Several bleeding sinuses were clamped; right hand swept between membranes and uterine wall. Right leg grasped and child extracted readily until arms were delivered. There was decided resistance in pulling head up from below through the contraction ring. The occiput, which was nearly between the scapulæ, was delivered first, then the chin, and lastly the face and forehead.

The lower angle of the uterine wound was extended about 2.5 cm. by this maneuver. The uterus was quickly cleared of placenta and membranes and closed by ten deep chromic gut sutures and a continuous suture of catgut, drawing the peritoneum over and burying the deep sutures. The abdomen was closed in three layers. Maternal pulse 112, and condition good at end of operation. Child, a male, weighed 3,525 grams, in good condition, save for marked œdema of face and a much-molded head. C. N. I. 7275.

CERVICAL LYMPH ADENITIS AS OBSERVED IN THE BABIES' CLINIC.

By Emelyn L. Coolidge, Physician to the Babies' Clinic.

In the Babies' Clinic we have had our full share of cervical lymph adenitis cases; this disease has been so prevalent among New York babies, both rich and poor, as to amount almost to an epidemic during the past winter months. The peculiarity of the disease has been that in many cases no apparent cause could be found; the routine examination of throat, nose and ears has in most instances failed to reveal anything abnormal, nor have the other lymph nodes in the body been found to share in the enlargement of those in the neck, the nodes in front and behind the sterno-mastoid muscle alone being the seat of the trouble. As a rule the history given by the mothers is as follows: The child has had some fever, is restless and somewhat uncomfortable, these symptoms being closely followed by enlargement of the lymph nodes, sometimes on one side of the neck, but in many cases on both sides; it is at this stage of the disease that the clinic mother usually appears with her baby, because "his throat hurts him;" for a few days the temperature varies, running from 100 to 104 degrees, the child is somewhat prostrated, and there is more or less pain and tenderness in the lymph nodes; in the course of three or four days the disease has reached its height, the swelling and other symptoms then begin to disappear, in many instances the child being entirely free from all signs in a week or ten days from date of onset. Occasionally the inflammation will continue, the node suppurate and break down; this has been the result in only two of our cases and both of these were seen late in the disease. Rarely otitis media has been found as a complication.

Treatment—As a general rule, we have given calomel in one-tenth of a grain doses, q. h. until a grain has been taken; if the child is still taking milk only, this has been diluted more than usual, or, if an older child, accustomed to table food, the diet has been restricted to milk and broths, while the temperature lasts; these older children have also been given a mild antiseptic spray for the throat. The local treatment for the mildest cases has been very gentle massage, with warm olive oil; for the more severe cases a clay poultice, applied fresh twice daily, has been ordered. The application of a small ice bag, which fits snugly to the neck, is also very beneficial to these cases, but few of our patients have been able to afford this treatment, and have done very well with the oil or the poultice which we have given them from the clinic supplies. In treating older children it is well to give fairly large doses of salicylate of soda, but our babies have been too young for this drug because of its great liability to cause serious trouble with the digestion. The two cases in our clinic, where the nodes suppurated, an incision was made as soon as marked fluctuation was found, the wound syringed with a weak bichloride solution, packed with iodoform gauze and a wet dressing applied for the first twenty-four hours. In one case the packing was removed at the end of this time and a sterile dressing applied for a few days until the wound completely healed. The other case had to be packed twice with balsam of Peru before the simple sterile dressing alone was used, but it then healed rapidly. In both of these cases the enlargement was on one side of the neck only.

This peculiar form of cervical lymph adenitis has been attributed by some of the leading pediatrists to a form of influenza or grip, and those who hold this view advise disinfection at the close of the disease of the apartment occupied.

LOBAR PNEUMONIA, FOLLOWED BY MISCARRIAGE AND EMPYEMA. REPORT OF A CASE.

By Ross McPherson, M.D., Attending Surgeon.

The patient, M. C., cf. no. 5464, 33 years of age, married, para IX, born in Ireland, was admitted to the wards of the Lying-in Hospital April 10, 1905, with the following history:

Family History—Not abnormal or important in this case.

Personal History—Not abnormal or important in this case.

P. I.—During the two weeks before entrance, she had had a cough, considerable expectoration and high fever. Two days previous to admission, she had miscarried at the sixth month, being attended at this time by a midwife. She stated that immediately following the delivery she noticed a severe pain in the chest on the left side. A physician was called, who, after examination, advised hospital treatment.

On admission she presented the following symptoms for consideration:

Thorax—Examination showed signs of a bronchitis over both lungs, with consolidation in the upper left lobe; no signs of fluid were present at this time. The heart's action was weak and irregular; the second sound was accentuated over the pulmonic area; no murmurs were heard nor was there any enlargement noted.

Abdomen—Palpation failed to reveal anything abnormal. The uterus was firm, not tender, the lochia scant in amount, sero-sanguineous in color, and not foul. The parametria were normal, so far as could be ascertained, and there was no evidence of any pelvic infection. No fresh lacerations were noted, either about the cervix, vagina or perineum.

Extremities—Nothing abnormal noted.

Her general condition was very poor, as she was extremely cyanotic and dyspnœic; temperature, 101.4; pulse, 160; respirations, 44.

Urine examination—A catheterized specimen showed:

Reaction, acid; color, dark; sp. gr., 1015; albumin, marked trace; sugar, absent; bile, absent; urea, 1.34 per cent.

Microscopical Examination—Many hyaline, fine and coarsely granular casts, considerable blood, and a few leucocytes.

Blood Examination—Red cells, 2,110,000; hemoglobin, 40 per cent.; color index, 0.9.

Leucocytes, 11,000; small lymphocytes, 15.6 per cent.; large lymphocytes, 3.4 per cent.; polynuclear cells, 81 per cent.; eosinophiles, 0.

Blood Culture—This was taken, and no growth reported at the end of forty-eight hours.

The patient was put on appropriate stimulation, a liquid diet, a pneumonia jacket of oiled silk applied, and she was sent to the solarium on the roof of the hospital, where the sun and air have free access on all sides.

During the next few days little change was noted in the patient's local signs, although her general condition seemed slightly better. On the seventh day after entrance, however, there was thought to be fluid in the left pleural cavity; aspiration of the chest cavity failed to confirm this diagnosis. The signs continuing, four days later thoracentesis was again performed, and again no fluid obtained.

On May 3d, or twenty-three days after admission, the physical examination of the patient was as follows: Respiratory murmur normal in right chest, as were also tactile fremitus and voice sounds. On the left side there was flatness from base to apex,

with sounds much diminished and absent tactile fremitus. The respiratory murmur was so much diminished as to be scarcely audible; the heart apex and left border of cardiac dullness were not made out, but the first sound was best heard just to the left of the ensiform cartilage; the right border of dullness was three centimeters to the right of the right sternal margin. The pulsations were very rapid, irregular, of poor quality, and at times almost embryocardial in character; the pulse was also irregular in rate, volume and tension, not all of the heart-beats being transmitted to the wrist with equal force. No murmurs were noted.

Pelvic examination showed nothing abnormal; the uterus was in good position and well involuted; there was neither uterine nor vaginal discharge.

At this time the chest was for a third time aspirated, under negative pressure, yellowish-green pus obtained, and about three hundred cubic centimeters withdrawn. Immediately following its removal, much relief to the patient was noted; the dyspnœa became less and the heart went partially back into place.

An examination of the blood at this time showed:

Leucocytes, 14,500; small lymphocytes, 15.5 per cent.; large lymphocytes, 9 per cent.; polynuclear cells, 75 per cent.

Operation was urged, but the patient refused to give her consent until ten days later, when the symptoms again becoming severe and the dyspnœa excessive, she agreed to allow the operation to be performed.

Under chloroform anæsthesia, after the usual aseptic preparation, an incision eight centimeters in length was made over the eighth rib in the mid-axillary line, on the left side. The rib was exposed, the periosteum split, scraped back, and a portion of the rib six centimeters in length resected; the pleura, which was very thick, was then incised, and about one thousand cubic centimeters of pus allowed to very slowly drain out. The pleural cavity was then wiped dry, swabbed out with tr. iodin, a double drainage tube of rubber, surrounded by iodoform gauze packing was inserted, and a large, dry, sterile dressing was applied. The patient was returned to bed in a condition of considerable shock, but responded well to stimulation and regular routine shock-treatment.

Examination on the following day showed the heart to be back in its normal position, and the lung to be fairly well expanded. Pus was discharging profusely from the wound in the chest wall.

The after-care from this time on consisted in keeping the wound open with gauze to permit of free drainage and an occasional application of tr. iodin to the walls of the pleural cavity; later this was changed to a 5 per cent. solution of argyrol, with apparently beneficial results.

Improvement was now steady until the discharge of the patient, June 27, 1905, on the seventy-fifth day, when she left the hospital with the chest wound practically healed. There was no sinus persisting, the lung was well expanded, and the respiratory sounds were clear. She had gained several kilograms in weight, her hemoglobin had risen from 40 per cent. to 70 per cent., her appetite was good, and her general condition excellent.

Since that time she has reported to the hospital several times, and on the last occasion stated that she felt perfectly well, was doing her own housework, and taking care of four children.

Examination of her chest failed to reveal any abnormalities whatever, with the exception of the slight signs of a thickened pleura and the healed scar of operation.

The case is interesting, on account of the complete recovery of the patient, especially in the presence of the existing conditions. We know that empyema in the adult is prone to result, either in a fatal issue, or in leaving the patient in a state of chronic invalidism. In the records of the Lying-in-Hospital we have histories of six cases of empyema, following confinement; as the total number of deliveries in this institution is in the neighborhood of fifty thousand, the percentage of cases of empyema will be seen to be not very large. On the other hand, the mortality in this condition was extremely high, as out of the six cases four died.

In our opinion, the contributing factors to the successful recovery of the case were:

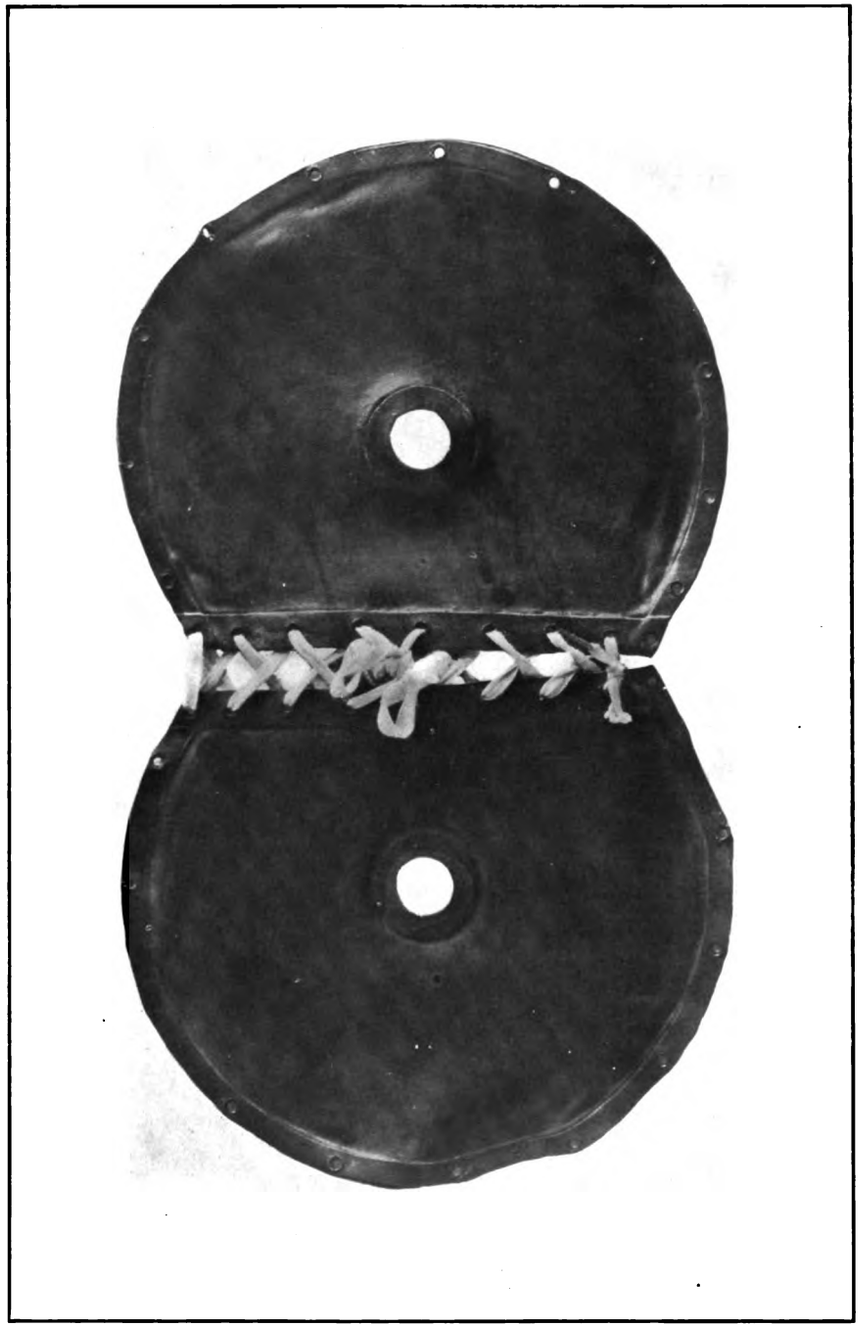

PLATE I.

(1) *Open-air Treatment*—The patient was in the sun and fresh air practically all of the time that she was in the hospital.

(2) *Forced Feeding*—She was given all the milk, eggs, etc., that she could digest, in addition to the regular diet.

(3) *Free drainage* of the abscess cavity, under the utmost aseptic precautions, with after-care of the non-interfering type, also carried out with the most careful attention to surgical cleanliness; practically no manipulations in or around the wound were allowed, except those already mentioned.

(4) *Suitable exercises* for lung expansion, which were used from the beginning.

This treatment has proved so successful in all septic conditions that it would seem as if it was the main factor in the happy outcome of this particular case, and that the operation and after-care, while, of course, necessary and important, might easily have availed nothing under conditions, and in surroundings, where easy and convenient access to the sun and increased air supply were not to be secured. The writer is well aware of the danger of drawing too many conclusions from the results obtained from one case, but he is so fully convinced of the exceeding value of the employment of sun, fresh, out-door air and forced feeding in the care of sepsis, whether it be post-partum or otherwise, that he considers the treatment outlined in this paper to be worthy of thoughtful consideration and trial.

AN INEXPENSIVE RUBBER BINDER FOR THE COMPRESSION OF THE BREASTS.

By J. W. Markoe, M. D., Attending Surgeon.

About ten years ago there was placed on the market a very elaborate form of breast binder. The back of this contrivance was made of linen. Attached to this were two sheets of moderately thin rubber, which could be stretched anteriorly over the breasts. Where the cost was no object to the patient this contrivance was found to be very efficient, but the rubber did not last long, and was very apt to be torn where it was sewed to the linen. It was almost impossible, moreover, to cleanse it thoroughly.

The form of breast binder about to be described has been used in my service at this hospital with very good results. Its construction is simple, and it can readily be cleansed and sterilized by the ordinary methods. The binder is made up of two circular pieces of sheet rubber, of about the diameter of the average breast, and in the center of each of these is an opening for the nipple. They are reinforced around their circumference and at the central opening by an additional rubber strip, and eyelets are provided along the edges for the introduction of pins. (Plate 1.) The method of applying this contrivance is illustrated in Plates 2 and 3, where it is shown pinned to the ordinary muslin binder. The degree of pressure may be regulated by the lacing between the two discs, and this is done after the binder has been pinned in place. In order to prevent congestion or infection of the nipples, which protrude through the central openings, two pieces of sterile gauze are placed over them and then the binder applied.

It is not intended that this binder should be applied in all confinement cases, but only in those where the glandular activity is greater than it should be, or where compression is ordinarily called for. It is, perhaps, most useful in cases where the child succumbs, and the milk secretion must be checked. In such cases the practice is to apply the binder within a few hours after the birth of the child, and allow it to remain until such time as the engorgement ceases. In ordinary cases, where the breasts become threateningly full, the binder may be used, but care should be taken that it is not applied for too long a time, as it may cause a suppression of the flow of milk. One of its advantages is that hot stupes or cold applications may be used without removing it. In an abscess of the breast, which has

been opened and drained, it has proven valuable in closing the abscess cavity and preventing further secretion of milk.

The ease with which this contrivance may be applied, the even pressure exerted, its small cost and the readiness with which it may be cleaned and sterilized, render this breast binder, it is believed, a useful addition to the obstetric armamentarium.

TOXÆMIA OF PREGNANCY—A REPORT ON A RARE TYPE OF THE DISEASE.

By Ralph Waldo Lobenstine, M.D., Attending Surgeon.

Despite the large amount of literature on this subject that has been recently published both in this country and abroad, and, despite our belief that, as a rule, there is but little purpose in publishing the history and course of but one case, still we believe that where we are dealing with a case of an unusual type a brief discussion is warranted. The chief interest of the patient about to be presented lies in the fact that the essential manifestations of the toxæmia were coma and marked rigidity of the neck.

The patient, Mrs. B. R., conf., No. 6586, a multipara, 7 months pregnant, entered the hospital September 15, 1905.

Previous History—Negative.

Present History—Five days before entering the hospital the patient was suddenly seized with severe headache and vomiting. On the 3d day of her illness (*i. e.,* two days before admission) she began to have marked stiffness and pain in the neck; she then became comatose, although she was still able to swallow. The vomiting continued so that she was able to retain but little nourishment given by mouth.

Examination on Admission—She was found to be well nourished, in a semi-comatose condition. She could be aroused at times sufficiently to answer in a dazed manner a few simple questions; there was slight œdema of the face and legs; no petechial spots were present. There was photophobia; intermittent inequality of the pupils, with marked external strabismus. There was very marked rigidity of the neck. Any motion of the head, either active or passive, caused the patient to moan repeatedly; the pulse was slow, without tension and of good volume; the abdomen showed a seven months' pregnancy. Vaginal examination was normal. Examination of the lower extremities showed Kernig's sign to be present. Urinalysis of a single specimen showed a faint trace of albumin, 1 per cent. urea and a few hyaline casts. The blood count showed 23,000 leucocytes, with 83 per cent. of polymorphonuclears. The diagnosis was made of toxæmia of pregnancy with unusual manifestations.

Early Treatment—The patient was given a thorough cleansing of the gastro-intestinal tract, with colon irrigations every twelve hours. She was put on a milk diet; an ice coil was placed on her head, and occasional doses of bromide of sodium were necessary.

September 16—A lumbar puncture was made by Dr. Welch. The report of this was absolutely negative. A blood culture was made, which was also negative.

Ophthalmic examination by Dr. Callan showed some œdema of the optic discs and some slight hemorrhages in the retinæ.

Urine analysis, by Dr. F. E. Sondern, showed:

Total quantity in 24 hours, 1500 c.c.; total nitrogen, 6.694 grammes; total nitrogen expressed as urea, 14.318 grammes; total urea (77 per cent. of T. N.), 11.025 grammes; total ammonia, 1.08 grammes; acetone present; indican in excess; a few hyaline casts present.

By September 19th the patient's mind had cleared considerably, but the pain and rigidity in the back part of the head and neck were still very marked.

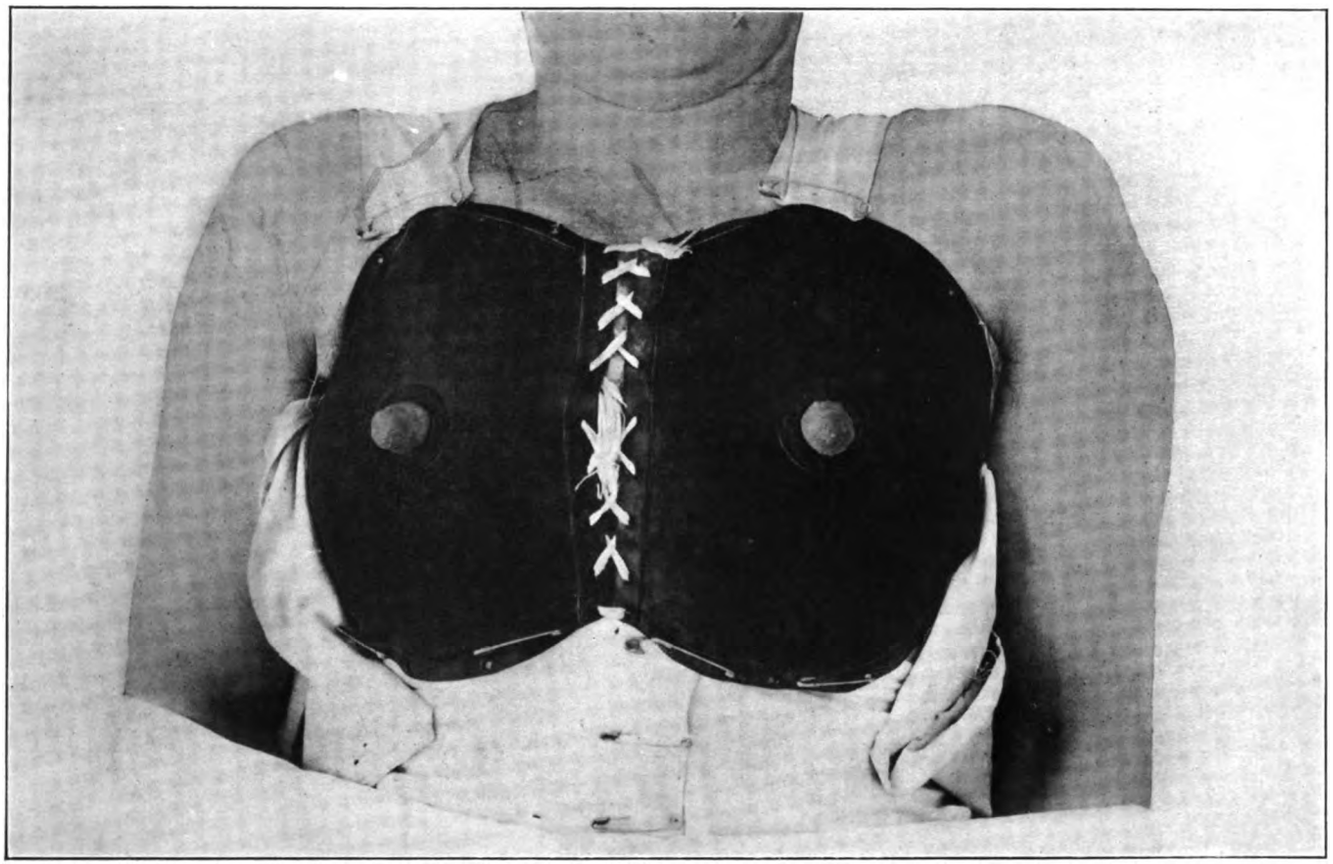

PLATE II.

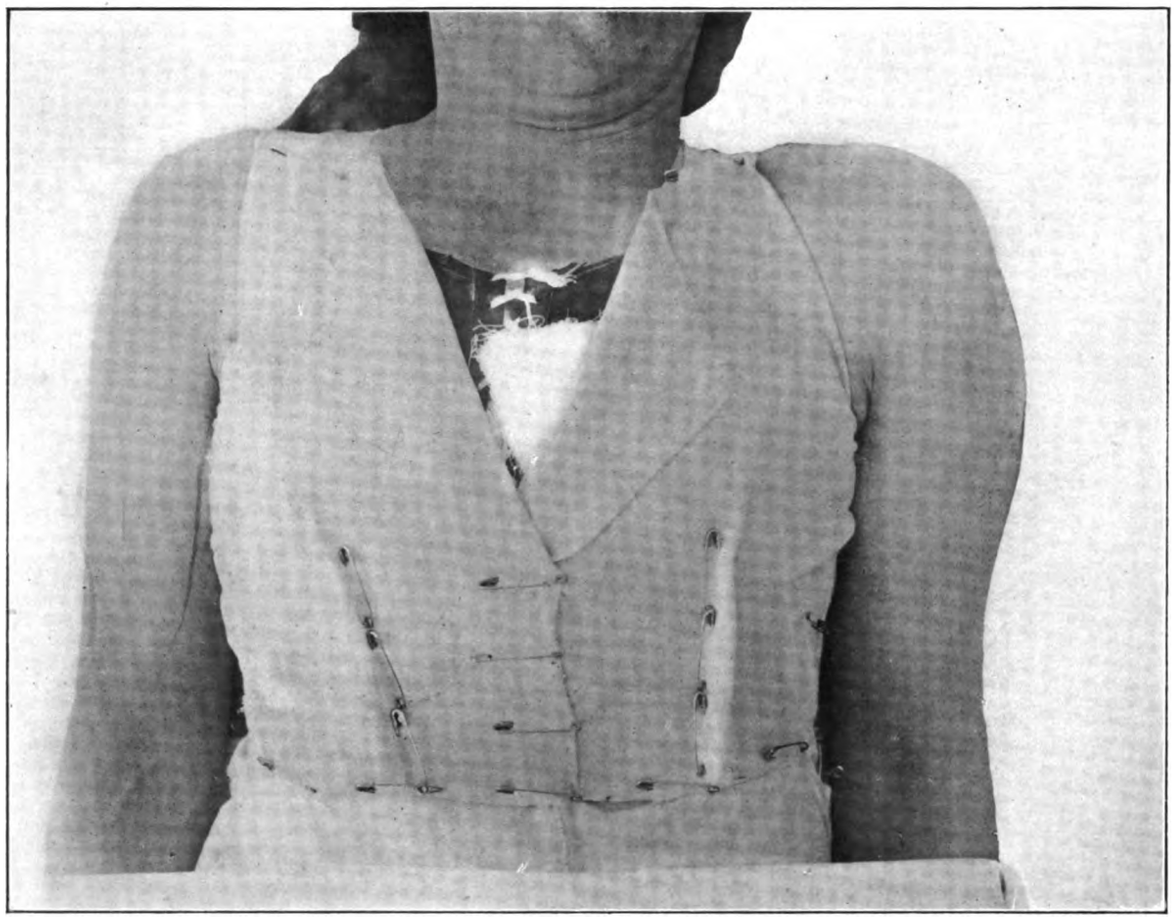

PLATE III.

As the vomiting had ceased soon after admission, the patient was able to take large amounts of milk and water.

By September 22d the eyes had improved greatly; the mind was clear, but the headache and rigidity of the neck still persisted.

Urine analysis by Dr. Sondern (specimen from September 17):

Total quantity in 24 hours, 1200 c. c.; total nitrogen, 5.670 gr.; total nitrogen expressed as urea, 12.128 gr.; total urea (85 per cent. of T. N.), 10.309 gr.; total ammonia, .37 gr.; acetone and indican present; amino acids, 1.88 gr.

A spinal culture was again taken and was negative; the leucocytes gradually dropped to normal.

By September 29 all subjective symptoms had disappeared, excepting some headache. From this time on the patient made an uninterrupted recovery.

We have here an unusual type of toxæmia of pregnancy, in which the general condition remained relatively good, and yet the patient showed for many days marked meningeal irritation. She was either semi-comatose or absolutely comatose for about seven days; the rigidity of the neck was as great as in the average case of cerebro-spinal meningitis.

From the urine analysis we note profound changes in the proteid metabolism. The uterus was not emptied despite the coma, despite the other signs of severe meningeal irritation, and despite the high percentage of ammonia nitrogen, because the patient's general condition did not seem to demand it. The patient was discharged on October 16 in good condition; she returned to the hospital on November 16 still in good condition, and gave birth three days later to a strong, healthy boy. Urinalysis by Dr. Sondern, at this time (before labor), showed:

Total quantity in 24 hours, 1420 c. c.; total nitrogen, 11.374 gr.; total nitrogen expressed as urea, 24.328 gr.; total urea (83 per cent. of T. N.), 20.192 gr.; total ammonia, .880 gr.; total amino acids, 1.020 gr.; no indican; no acetone; no casts; faint trace albumin.

Cases of this kind are very infrequent. The only other case that has come under the observation of the writer, where actual coma has been present, was seen at the Sloane Maternity Hospital in 1903, in the service of Dr. Edwin B. Cragin. This patient developed acute toxæmia soon after delivery, and for about five days lay in a state at times of partial coma and at other times of complete coma. There was a high temperature and a high pulse rate. There were many sub-cutaneous hemorrhages, but there was *no* rigidity of the neck. This case also recovered.

J. Whitridge Williams says: "In very rare instances the woman suffering from toxæmia of pregnancy may pass into a somnolent condition, which gradually deepens into coma, usually followed by death. Schmorl has lately reported three such cases in which the autopsy revealed lesions identical with those revealed in eclampsia. I have also met with a similar instance."

Dr. J. Clifton Edgar, in a recent monograph on the "Clinical Manifestations of the Toxæmias of Pregnancy," cites one case in which the mental torpor was present to a marked degree.

Dr. Henry McM. Painter, in his monograph on the "Acid Intoxications of Pregnancy," also mentioned a case of marked mental torpor, but in neither of these latter cases, so far as the writer can learn, was actual coma at any time present.

ANÆMIA IN PREGNANCY.

By Frederic E. Sondern, M. D., Director of the Clinical Laboratory.

The advances in hematology have led to greater accuracy in the classification of the cases of anæmia met with, and in consequence of this more thorough study, comparatively few cases escape accurate tabulation. The differentiation between severe secondary anæmia and so-called primary pernicious anæmia

offered the greatest difficulty, and as the use of modern methods has demonstrated the greater frequency of the former condition and the comparative infrequency of the latter, it is reasonable to assume that in the past many cases of fatal secondary anæmia have been classed as belonging to the primary pernicious form. The objection to the present classification is our lack of knowledge concerning the etiology of so-called primary pernicious anæmia, and until more is known of the causative factors, the suspicion remains that it may also be a secondary anæmia, the cause of which has not been demonstrated.

The older authors considered pregnancy as one of the numerous exciting causes of primary pernicious anæmia. Lebert, Eichhorst and Birch-Hirschfeld, among others, have described series of cases, each author assuming a different direct cause. The more recent writers call attention to the infrequent reports now published, and claim that the alarming cases of anæmia met with in pregnancy invariably show the characteristics of a secondary anæmia, and not those at present demanded for a diagnosis of the progressive pernicious form of the disease. Ehrlich, in his review of what has been published, claims to have found but one case which really seemed to belong to the pernicious type. Ahlfeld states that in his wide experience he has not met with a case, and Ewing reports that no case was seen at the Sloane Maternity Hospital between 1892 and 1899. Personally I can recall but one instance, which was in the service of Dr. J. W. Markoe, where the blood picture presented many of the cardinal signs of a severe pernicious anæmia, but the presence of the æstivo-autumnal parasite demonstrated that the case also belonged to the secondary type.

Ehrlich, in his text book on Anæmia, concludes that it is not possible to ascribe to pregnancy any particular influence in the origin of progressive pernicious anæmia, and while the evidence at hand seems to bear out this belief, it is well to refrain from a positive opinion until the etiology of this condition becomes more clearly established.

Dismissing the subject of pernicious anæmia with the above cursory remarks, the remaining classes of anæmia met with in pregnancy are chlorosis and secondary anæmia.

That the chronic chlorosis seen in young women is frequently much improved and apparently cured by marriage and pregnancy has been described by Lazarus and others. It is, however, not by any means an infrequent occurrence that pregnancy is the cause of increased severity of a pre-existing chlorosis, particularly if this condition is complicated by a disturbed state of mind, such as can be brought about by pregnancy out of wedlock, or an undesired pregnancy. From the hematologist's view-point the minute details then often come so close to the characteristics of a second anæmia, justifying the suspicion that we are after all dealing with the last-named condition, or that, at least, this is engrafted on the original chlorosis.

Secondary anæmia is the common type encountered in pregnancy. A perusal of the records of blood examinations, made as a routine matter in this institution, corroborates in a general way what has been published by Payer (Arch. f. Gyn., Bd. 71) and W. L. Thompson (Johns Hopkins Hosp. Bull., June, '04), concerning the changes brought about in the blood as the result of normal pregnancy. All these observations show that in normal pregnancy the blood presents the characteristics of a mild secondary anæmia with one exception. There is a moderate decrease in the number of red corpuscles from 500,000 to 750,000, and a reduction in the amount of hemaglobin of about 10 or 15 per cent., which changes develop early in pregnancy and gradually disappear during the last two months of gestation. The exceptional feature is, that instead of the leucopenia and relative lymphocytosis common in most cases of secondary anæmia, these cases present a moderate leucocytosis and relative increase in polynuclear cells on differential count. This polynuclear increase, constantly observed in the several hundred cases I have tabulated, is contrary to the statement made by Thompson, whose observations led him to conclude that there is no variation from the normal in the relative number of the different forms of leucocytes. While a secondary anæmia of the grade and characteristics as stated, must be looked upon as a physiological change, its manifestation in greater degree, particularly when associated with leucopenia and relative lymphocytosis, is certainly abnormal,

and for a number of reasons deserving of more attention on the part of the obstetrician than it receives. Parturition itself is a task worthy of the best physical condition, and impaired blood means impaired vitality, certainly to be avoided at that time, to say nothing of its influence in the etiology of the serious complications encountered late in pregnancy. My hematological work in private obstetric practice shows an astonishing prevalence of secondary anæmia, and prompts the thought, that while all complications of pregnancy are doubtless the cause of anæmia, that possibly the anæmia, secondary in itself, nevertheless is often the cause of additional difficulty on account of lowered vitality if for no other reason. Secondary anæmia in pregnancy, the result of poor food and bad hygiene, hemorrhages from the uterus or from varicose conditions, severe vomiting and diarrhœa, or other distinctly manifest disorders of the gastro-intestinal tract, nephritic or toxic albuminuria, and that accompanying complicating diseases such as syphilis, tuberculosis, malaria, malignant tumors, helminthiasis, etc., are the daily experience of clinicians and need no more than mere mention, as the cause is obvious. Every obstetrician, however, will recall one or more cases of severe secondary anæmia, without disturbances of nutrition, in which all the above-mentioned causes could be excluded, and which oftentimes did not yield to treatment. These cases form a recognized class, and are described in most writings on the subject, the older authors giving them the name of progressive pernicious anæmia of pregnancy. Critical analysis shows that they present the minute characteristics of secondary anæmia. Numerous exciting causes have been exploited, but none of the theories present sufficient basis for the assertions to inspire confidence. The work very recently done by Herter and his associates in looking for the bacteria in the intestine that are the cause of intestinal toxæmia and thus occasion very severe grades of secondary anæmia, and the results obtained by treatment on this basis, are most instructive, and promise to solve what always has been looked upon as a hard problem. When it is recalled that the pregnant woman is particularly susceptible to intestinal toxæmia, this explanation seems plausible, and the outcome of the investigations will be awaited with interest.

It would appear that intestinal toxæmia is a predisposing factor in the toxæmia of pregnancy, and if it is true that the same condition is the etiological basis of the severe secondary anæmia of pregnancy, it is most important that the evidences of the condition should be watched for in the urine of pregnant women, and the fault energetically combatted when it occurs. This is another development which shows how important proper urine analysis is if its usefulness is to be exhausted.

The possible effect of anæmia in pregnancy on the infant has often suggested itself. The literature, as far as I have been able to learn, fails to mention the subject. Inquiry of a number of obstetricians of large experience elicits the information that the children are usually in good condition at birth, and show no effect of the mother's anæmia. As impoverished blood loses some of its oxygen-bearing property, to say nothing of other probable changes in function, it is possible that this may explain conditions subsequently found in the infant, if not apparent at birth, and it is reasonable to assume that an investigation of the subject would prove a fruitful research.

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EXCHANGES.

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Glasgow Medical Journal.
American Journal of Surgery.
Cronica Medica Mexicana.
Archivio di Obstetricia e Ginecologia.
Monthly Cyclopedia of Practical Medicine.

The Bulletin of the Lying-In Hospital of the City of New York is published quarterly. The subscription price is One Dollar per annum in advance. All communications and exchanges should be addressed to the Editor, Geo. W. Kosmak, M.D., Lying-In Hospital, Second Avenue and 17th Street, New York City.

INSTRUCTION IN PRACTICAL OBSTETRICS.

SOCIETY OF THE LYING-IN HOSPITAL OF THE CITY OF NEW YORK.

A number of courses in obstetrics are offered at this hospital to both graduate and undergraduate students. The aim has been to make these courses eminently practical and the instruction is given with the parturient woman and her child rather than with the text-book as a basis. This makes it desirable that the student give up his entire time to the work, and comfortable quarters are therefore provided in the hospital building, board being obtained in the neighborhood. The service includes an indoor and an outdoor department and the number of deliveries in both averages at the present time more than four thousand annually. The indoor service consists of three separate divisions, with a medical director at the head of each and a staff of assistants. The instruction is to a large extent personal and individual, the endeavor being made to bring student and teacher into close contact, both at the bedside and in the operating room.

The Hospital is situated on Second Avenue, occupying the entire block front between Seventeenth and Eighteenth Streets. The building is entirely fireproof, and was completed only a few years ago. It is pleasantly situated, facing one of the small public parks and yet is within easy reach of the most thickly populated districts in the city, from which its material is largely drawn. The service not only includes abnormal and normal labors, but the treatment of all the complications which may arise during pregnancy and the puerperium. The number of beds occupied by patients averages about 100 and are all free, so that there is ample material for teaching purposes.

As already stated the courses of instruction are open to both graduate and undergraduate students. The graduate courses are intended for practitioners only who may desire to refresh or extend their knowledge of obstetrics. They may reside without the Hospital but it is advised that when possible they avail themselves of the lodgings provided by the Hospital and included in the fee. Students are assigned in the order of their application, to one of the three divisions and they remain with the division to which they are assigned during their entire stay in the Hospital. Facilities are afforded for witnessing all normal and abnormal labors, such operations as may become necessary during pregnancy and the puerperium and the technic of the care of mother and child. Cases are sent to the Hospital or brought in by the ambulance with every form of complication of pregnancy, labor and the puerperium, no cases, except those suffering from contagious diseases being refused. Graduates may also elect to take a part of their course in the out-patient department, where they will be taught to apply the latest technic in modern obstetrics amid the most squalid surroundings. This part of the course is invaluable for those doing private practice.

When on duty in the Hospital they are expected to be present at the daily rounds of the surgeons in the wards. Operations are performed by the surgeons of the Hospital in the presence of the students. At the discretion of the Director, certain students may be allowed to do minor operations under his guidance as opportunity arises.

The 'Touch Course' is open to practitioners who live without the Hospital and consists of the examination of pregnant women applying for admission. These examinations are made by the student under the immediate supervision of one of the Attending Surgeons and are very thorough, careful records being kept of each case for use at the time of labor and as a part of the permanent record of the case.

A course in examinations of ambulatory post-partum cases under treatment is also given by the attending surgeons, to which students are admitted.

Medical students who can give satisfactory evidence of attendance at a reputable medical college are admitted to the regular undergraduate course of three weeks' duration, one of which is spent in the Hospital and the other two in the out-door department. Each student personally attends and conducts cases of labor, and the instruction in addition includes antepartum examinations, post-partum calls, and lectures of demonstrations by the attending surgeons.

Comfortable lodgings are provided in the Hospital building, which are included in the fee.

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